Advanced MANAGEMENT

In This Issue...

Silence—An Employee Relations Pitfall
C. J. Dover

Applying Some Modern Methods To The Small Plant
Robert P. Haynes

Leadership, Authority, And The Span Of Control
Waino W. Suojanen

Quality Control From Bench To Budget
Frank H. Squires

Operation Or Operator—Basis Of Leveling Industrial Workers' Performance?
Lee E. Kimball

1957

NBS

Most Important Business Show Ever!

The 1956 National Business Show went way beyond anything ever held before:

★ Most Important in number of exhibits
★ Most Important in attendance
★ Most Important in enthusiasm.

... and the 1957 Show promises to be still more important.

NATIONAL BUSINESS SHOW

All *the industry exhibits*—All *management attends*

OCT. 28th THROUGH NOV. 1st, 1957

New York Coliseum, Columbus Circle, New York

Rudolph Lang, Managing Director

33 West 42 Street, N. Y. 36, N. Y. · Pennsylvania 6-6760

If you direct men and machines—make this important book part of your working equipment . . .

WORK SAMPLING

By

RALPH M. BARNES, M.E., Ph.D.,
University of California, Los Angeles

Here is a thorough, authoritative guide to this effective device for measuring the working and non-working time of machines and of men employed in either direct or indirect activities. Wherever time and money are at a premium work sampling has proved its worth as a fact-finding tool. This clear presentation—including basic concepts *plus* actual practical procedures—gives you all the information you need to put work sampling to use.

The early portion of the book explains the fundamentals necessary to understand the technique, outlines the underlying statistical concepts, and shows you how to proceed in a work sampling study. The rest of the book is devoted to results of research and examples of the application of work sampling methods ranging from performance sampling to ratio delay. Tippett's pioneering paper is reprinted in full in this section and recently published studies by Barnes and his U.C.L.A. colleagues are also included. Interesting case studies show you how the theory can be effectively applied to solve real problems.

Just out. 283 pages. 107 illus. $8.75

Mail this coupon for a 10-day ON-APPROVAL copy!

JOHN WILEY & SONS, Inc. AM-97
440 Fourth Ave., New York 16, N. Y.

Please send me a copy of WORK SAMPLING to read and examine ON APPROVAL. Within 10 days I will return the book and owe nothing, or I will remit $8.75, plus postage.

Name .....

Address .....

City ..... Zone ..... State .....

( ) SAVE POSTAGE! Check here if you ENCLOSE payment, in which case we will pay postage. Same return privilege, of course.

Over 50,000 people read

ADVANCED MANAGEMENT

SEPTEMBER 1957
VOLUME 22 NO. 9

Production Editor: Beatrice Jones

NATIONAL OFFICERS: 1956-1957

Chairman of the Board—JOHN B. JOYNT, Vice President of Management Planning, N. Y. Central Railroad

President—HOMER E. LUNKEN, Vice President and Director, The Lunkenheimer Company, Cincinnati, Ohio

1st Vice President—PHIL CARROLL, Professional Engineer, Maplewood, N. J.

2nd Vice President—MAURICE R. BACHLOTTE, Methods and Standards Supervisor, E. I. du Pont de Nemours & Co., Inc., Old Hickory, Tenn.

Secretary—HUGO W. DRUEHL, President, Arrowhead and Puritas Waters, Inc., Los Angeles

Treasurer—FRED E. HARRELL, Curtiss-Wright Corp., Marquette Div., Cleveland, Ohio.

Executive Vice President—HAROLD R. BIXLER.

Vice President of Civic Affairs—GEORGE M. GOETTELMAN, Johnson & Johnson, New Brunswick, N. J.

Vice President, Distribution—AL N. SEARES, Vice President, Remington Rand, Inc., New York, N. Y.

Vice President of Industrial Engineering—RALPH M. BARNES, Professor of Engineering & Production Management, University of California, Los Angeles, Calif.

Vice President, Management Research and Development—RALPH C. DAVIS, College of Commerce & Administration, Ohio State University, Columbus, Ohio

Vice President, Material Handling—WARREN J. KING, Associate Editor, McGraw-Hill Publishing Company, New York City.

Vice President, Membership—EUGENE R. RUARK, Personnel Director, Indiana Farm Bureau Cooperative Assn., Inc., Indianapolis, Indiana

Vice President, Chapter Conferences and Seminar Development—LESTER F. ZERFOSS, Staff Advisor for Executive Development, American Enka Corp., Enka, N. C.

Vice President, Senior Chapter Operations—E. LESLIE PRIESTMAN, Atlas Plywood Corporation, Boston, Mass.

Vice President, Small Business—L. T. WHITE, Director, Cities Service Petroleum, Inc.

Vice President, Central Region—EDWARD C. EBELING, Vice President and General Manager, Leland Electric Company, Dayton, Ohio.

Vice President, Middle Atlantic Region—OLIVER J. SIZELOVE, Chairman and Professor, Dept. of Management Engineering, Newark College of Engineering, Newark, N. J.

Vice President, North Central Region—GEORGE W. TALLEY, Cutler Hammer Co., Milwaukee, Wisconsin

Vice President, Northeastern Region—ROBERT W. MACWILLIAMS, Ernst & Ernst, Boston, Mass.

Vice President, Southeastern Region—HEZZ STRINGFIELD, Jr., Finance Director, Oak Ridge National Laboratory, Carbide & Carbon Chemicals Co., Oak Ridge, Tenn.

Vice President, Western Area Chapters — WLLIAM R. WILLARD, Columbia Geneva Steel Div., U. S. Steel Corp., San Francisco, California

NATIONAL OFFICE STAFF

HAROLD R. BIXLER—Exec. Vice President

Vice President, University Chapter Division — HAROLD FISCHER, Professor of Business Administration, Franklin & Marshall College, Lancaster, Pa.

VINCENT A. FLYNN—Research Director

PATRICK J. REDDINGTON—Educational and Conference Director

MARION CUSICK—Office Mgr. and Asst. Treas.

The editor will be pleased to review manuscripts submitted for publication, but will not be responsible for loss in transit, safe custody or otherwise.

DISCLAIMER: The views of the authors are not necessarily those of the Society for Advancement of Management. S.A.M. will not be responsible for any liability that might develop as a result of articles published in this magazine.

"Through research, discussion, publication, and other appropriate means to conduct and promote scientific study of the principles governing organized effort in industrial and economic life . . . for the general betterment of society . . ."

S.A.M. Constitution

CONTENTS

Articles

Policy Determination 6
By H. E. Lunken

Silence—An Employee Relations Pitfall 7
By C. J. Dover

Applying Some Modern Methods To The Small Plant 11
By Robert P. Haynes

Leadership, Authority, And The Span Of Control 17
By Waino W. Suojanen

Quality Control From Bench To Budget 23
By Frank H. Squires

Operation Or Operator—Basis For Leveling Industrial Workers' Performance 25
By Lee E. Kimball

Features

New Management Writing 28
A listing of recently released books of interest to management executives.

University Chapter News 4
Hamilton Awards Presentations.

Senior Chapter Performance Awards Report 5

Senior Chapter Membership Standings as of August 1, 1957 5

The following items are registered trademarks owned by the Society for Advancement of Management, Incorporated: ADVANCED MANAGEMENT, S.A.M., *and the seal*

ADVANCED MANAGEMENT, published monthly by the Society for the Advancement of Management, Inc., 74 Fifth Avenue, New York 11, N. Y., is successor to The Society for the Advancement of Management Journal, the Bulletin of the Taylor Society and of The Society of Industrial Engineers. Reentered as second-class matter, December 23, 1949, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1956, Society for Advancement of Management. Permission must be obtained for reprinting, digesting, or quotation. Subscription rates: $8.00 per year. Single copies: 75 cents (members); $1.00 (non-members). All members receive this publication, for which $4.00 of their dues is allocated. Reprints of articles readily available in quantity, price schedule on request. An index to ADVANCED MANAGEMENT is published annually, and the contents are also indexed in Industrial Arts Index, available at Public Libraries. Notification of address changes must be given four weeks in advance.

S.A.M. Student Membership Award Winners

MEMBERSHIP Award winners among the Student Chapters received gold Hamilton watches from the Hamilton Watch Company of Lancaster, Pennsylvania, in recognition of membership growth in the individual chapters during the academic year. The watches were then awarded to individuals within the winning chapters who contributed most to the membership increase in the winning chapters.

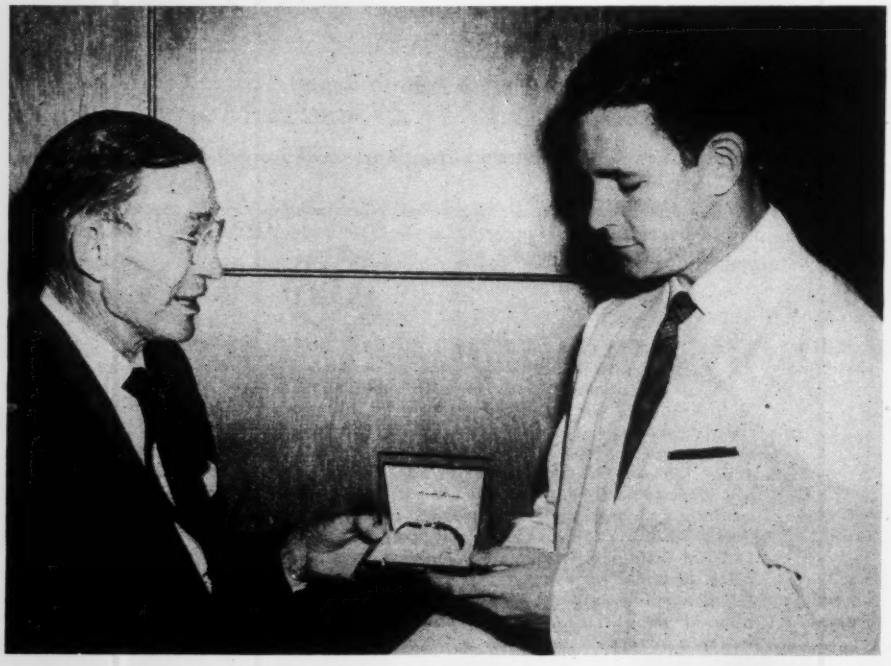
The Hamilton Membership Awards are presented to (1) the chapter with the largest membership on April 1; (2) the chapter with the largest percentage increase in each of the periods, April 1 to December 1, and December 1 to April 1; (3) the chapter with the largest absolute increase in each of the periods, April 1 to December 1, and December 1 to April 1.

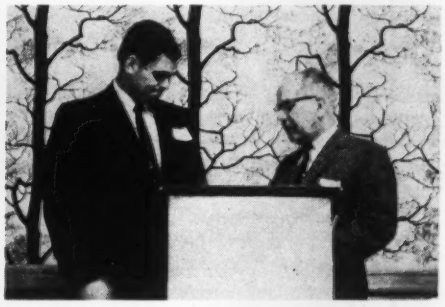
The **University of Texas** finished first in membership for the academic year, with 320 members in its student chapter. **Indiana University** chapter was second place winner with 309 members.

Mississippi State College and the **University of Houston** chapters achieved the greatest absolute increase in membership, while **West Virginia University** and **Los Angeles State College** chapters obtained the greatest percentage increases in membership.

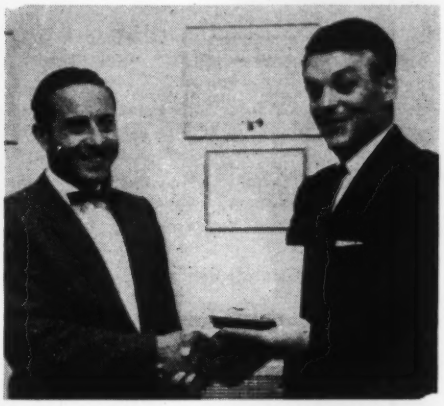
Above: University of Houston's Hamilton Watch Award presentation. **Left to Right: Dr. Leslie Munnere,** recipient **Mr. Jack Campbell, Dr. Howard Nudd,** Chairman of Department of Management, and **Dr. DeWayne Stonebarger.**

Below: Mississippi State College President **Ben Hilbun** presents Hamilton Watch to recipient **James E. Noblin.**





Top: University of Texas recipient **David Plank** receives his Hamilton Watch from **Professor Harold Fischer,** S.A.M. Vice President of University Chapter Division.



Center: Indiana University's **Professor Bruce D. McSparrin** presenting the Hamilton Watch award to student winner **Jack Rominger.**

Bottom: West Virginia University's recipient **Keith McAfee** receives the Hamilton Watch and congratulations from (L to R) **Dr. Thomas Isaac,** Advisor, **Mr. Stanley Henrici,** S.A.M. Pittsburgh Chapter member, and **Mr. John Douglass,** advisor.

RESULTS OF THE UNIVERSITY PERFORMANCE AWARDS COMPETITION FOR THE ACADEMIC YEAR, 1956-1957

Tie 1st Place	Indiana University	6550
	Mississippi State College	6550
3rd	University of Pittsburgh	6250
4th	Ohio University	5595
5th	Boston College	5550
6th	University of Texas	5505
7th	American University	5165
8th	University of Alabama	5030
9th	Clarkson College of Technology	4825
10th	University of Houston	4690
	University of Wisconsin	4660
	University of Minnesota	4585
	University of Calif. (Berkeley)	4525
	University of Connecticut	4355
	Rider College	4290
	Boston University	4290
	Guilford University	4285
	Franklin and Marshall College	4050
	Syracuse University	3860
	University of California (L.A.)	3840
	Alabama Polytechnic Institute	3800
	University of Baltimore	3615
	Los Angeles State College (Ramona Campus)	3200
	University of Detroit	3090
	Louisiana State University	3005
	University of Rhode Island	2960
	Rutgers University	2840
	Pennsylvania State University	2800
	Western Michigan College	2505
	LaSalle College (Evening Div.)	2415
	St. Johns University	2365
	University of Missouri	2305
	Kansas State University	2135
	Georgetown University	1860
	Tulane University	1790
	West Virginia University	1765
	University of Oklahoma	1545
	DePaul University	1400
	Temple University	1355
	Roosevelt University	1125
	University of Southern Calif.	1340
	Hofstra College	1040
	College of William and Mary	965
	Woodbury College	925
	Cornell University	840
	San Diego State College	720
	Seton Hall University	665
	Georgia Institute of Technology	515
	Lamar State College*	300
	Babson Institute	265
	Loyola University	200
	University of Kansas*	95

* New chapters

The University Chapters submit to the Vice President in charge of the division, Bi-monthly Control Reports of planned and accomplished activities. They then are judged on the basis of program, organization, financial controls and public relations. The first ten chapters receive recognition at the Fall Management Conference of the Society in New York — citations and banners.

The Remington-Rand Achievement Awards given by the *Remington-Rand Company of New York,* to the first five University Chapters judged by the terms of the Performance Awards Plan:

First Place	$350.00
Second Place	325.00
Third Place	300.00
Fourth Place	275.00
Fifth Place	250.00

The A.M.P., Inc., Performance Awards are provided by A.M.P., Inc., of Harrisburg, Pennsylvania, to the second five chapters in standing at the end of the academic year under terms of the Performance Awards Plan —

Sixth Place	$200.00
Seventh Place	150.00
Eighth Place	125.00
Ninth Place	125.00
Tenth Place	100.00

These grants are designed to recognize achievement and the money is to be used by the Chapters to send their officers to the Fall Management Conference in New York City to receive the citations and banners, and to participate in a National Management Conference concerned with the advancement of the art and science of management.

Senior Chapter Standings

CHAPTER PERFORMANCE AWARDS REPORT

July 31, 1956 - June 30, 1957

Providence	13248	Binghamton	5746
Knoxville	11198	Lehigh Valley	5588
Greenville	10921	Clearing	5501
Washington	10473	Los Angeles	5400
Hudson Val.	10038	Chicago	5380
Milwaukee	8663	No. N. Jersey	5187
Pittsburgh	8561	Richmond	5001
Reading	8528	Tren.-Del. Val.	4960
N. E. Penna.	8301	Charlotte	4913
Kansas City	8234	Detroit	4805
Nashville	8161	Madison	4735
Lancaster	7921	Portland	4247
Greensboro	7906	Sacramento	4117
West. N. Car.	7141	Montreal	4089
Hartford	7110	Worcester	4062
Baltimore	6988	Bridgeport	4041
New Haven	6905	Western Mass.	3450
Wlimington	6383	Dallas	3001
Boston	6316	New Orleans	2166
Twin City	6205	No. Alabama	1853
Cleveland	6194	San Francisco	1839
Raritan Valley	6102	Athens	1484
Alabama	6060	Central Penna.	1400
Georgia	5784	Philadelphia	716

CHAPTER MEMBERSHIP STANDINGS AS OF

August 1, 1957

New York	381	Long Island	70
Philadelphia	353	Georgia	69
N. New Jersey	313	No. Alabama	61
Cincinnati	301	Hartford	58
Lancaster	278	Richmond	58
Chicago	267	Tr. Del. Val.	58
Pittsburgh	256	Alabama	55
Cleveland	226	Cent. Penna.	54
Washington	212	London, Ont.	54
Detroit	205	Poughkeepsie	54
Boston	196	Charlotte	53
Milwaukee	193	Clearing	51
San Francisco	172	Twin City	51
Los Angeles	145	Hawaii	49
Indianapolis	138	Calumet	48
Dallas	124	Northland	48
West. No. Car.	122	Lehigh Valley	48
Montreal	120	Mohawk Valley	48
Kansas City	118	Bergen County	45
Binghamton	114	Cent. New York	44
Raritan Valley	113	West. Mass.	42
Providence	111	Westchester	41
Worcester	110	Fox Valley	40
Sacramento	105	Madison	39
Hudson Valley	105	Nashville	37
Wilmington	103	Athens	32
New Haven	102	No. Miss.	32
Greensboro	101	St. Louis	31
Baltimore	100	Portland	30
Knoxville	99	New Orleans	26
Greenville	92	N. E. Penna.	26
San Diego	87	Orange Coast	24
Dayton	80	Louisville	14
Bridgeport	77	Stamford	11
Columbus	73	Non-Chapter	93
Puerto Rico	71	Non-Residents	106
Reading	70		

Policy Determination

AN ORGANIZATION cannot operate successfully without sound policies. Policies are the guideposts of present decision and future action. They provide the basis for answers to important questions with which the members of an organization are confronted daily. They permit consistent action by different people at different times and places. They make effective delegation and decentralization practicable. Whether we recognize it or not, we just can't get along without policies.

The need for clear definition and understanding of the fundamental policies by which a business is managed becomes increasingly evident under present day competitive conditions. The forces which drive the manager constantly to seek out new and better methods also put a premium on the objective of effectuating organizational coordination. The existence of clearly defined and understood policies is a distinct help toward this objective. Businesses which have advanced and prospered over a period of years have usually been successful in large part because they were managed under basic policies that resulted in a product or service which gave a high degree of customer satisfaction. Obviously, the policies had to result in stockholder and employee satisfaction too. On the other hand, there are numerous exaples of unsatisfactory results due to the failure of the management to develop sound policies and consistently apply them.

One of the most useful tools in policy determination today is the development of written policies. First of all, written statements promote more careful consideration of what we intend to say. Secondly, the process of reducing policies to writing helps get the benefit of the thinking of others when more than one person is involved in policy determination. Also, the written policy permits transmittal of this kind of information to those who are expected to take action much more effectively and uniformly than word of mouth. Finally, the written statement facilitates policy modification or change. Policy determination is, after all, a continuous process. As conditions change, many policies should be revised to meet these changed circumstances. There are few policies which are absolutely impervious to change. In this connection, the written policy facilitates intelligent change because disagreement over what the existing policy actually intends to convey is minimized. All policies should be subject to periodic review and, when this is based on a clear understanding of the present policy, consideration of possible changes to meet changed circumstances can be discussed and resolved in an orderly fashion.

Formal policy determination is a tool which has served to stimulate thinking and sharpen perception of basic management problems. It has made effective delegation possible and improved coordination both up and down, as well as across the organization.

H. E. Lunken
S.A.M. National President

Silence—An Employee Relations Pitfall

By C. J. Dover
Consultant
Employee Communication & Group Relations
General Electric Company
New York City

MY SUBJECT is management's relationship with employees and, specifically, what we say (and fail to say) in typical communication with employees. This topic should interest all of us. Perhaps it has received too little attention from us in the past. Many of us have employee relations or employee communication responsibilities, thus have a substantial voice in management's annual expenditure of an estimated $500,000,000 on employee communication.

But every management PR person, regardless of whether he has specific employee relations responsibility, has a vested interest here. The name given this session—*Public Relations Aspects of Employee-Management Relations*—is significant. *The basic relationship between employer and employee casts either light, or shadow, on management's relationship with every public.*

For example, the finest plant community relations program in existence will crumble under the slightest strain, if it's built on a rotten foundation of poor employee relations. This unavoidable interrelationship between public and employee relations is one reason behind the growing tendency to combine these two functions in the corporate structure. So the importance of Employee Relations should be apparent to every management PR man.

My aim today, speaking as one member of this Society to his associates, is to criticize — constructively, I hope — certain widely-accepted employee relations patterns. *My basic thesis is that management silence is the Achilles heel of employee relations—silence on those controversial issues which are most important from the employees' standpoint; that this silence too often is hurting our standing with employees—and that, conversely, forthrightness is one of our greatest needs.*

We in *PRSA* have long emphasized that good public relations is "good deeds, publicly recognized"; that we first should do right, before we communicate with our publics. The emphasis on good deeds has been soundly placed, and has done much to raise PR status from mere press-agentry. But a study of the usual content of employee communication today compels the observation that perhaps too many of us are too often forgetting that *speaking up* is still a vital part of our public relations formula.

Management expends millions of dollars and billions of words on employee communication. We have assembled the greatest array of communication channels and techniques in history. We use magazines, newspapers, posters, letters, reading racks, bulletin boards, radio, TV, public address systems, newsletters, daily bulletins, loudspeaker systems, billboards, round-table conferences and individual and mass meetings. And never has so much effort been put into saying so little.

For, in spite of this massive effort, we've got to face up to the fact that most of us in management religiously observe a conspicuous "Zone of Silence". Too many of us consistently refuse to speak up on certain employee-centered, controversial issues. Let me be specific. The controversial issues I'm talking about are those which bring sharply different points of view, and which often lead to open dispute and conflict among businessmen, union officials, gov-

C. J. DOVER provides staff advice, counsel and appraisal functions in employee communication, community relations and press-radio-TV relations to General Electric production departments throughout the nation. Prior to his present position he served GE as an advertising and sales promotion specialist, community relations specialist, and manager of Community Relations and Communication for the Lamp Division. Before joining General Electric, in 1948, Mr. Dover was a Director of Public Relations for UNRRA, and he had worked as a newspaperman, radio writer and publicity agent before serving as an Air Force Captain during World War II.

ernment representatives, and employees. Here are nine examples of such issues:

1. Automation
2. Union negotiations, strikes and work stoppages.
3. *Specific* political issues.
4. Union representation elections.
5. Product price increases.
6. The so-called "Guaranteed Annual Wage".
7. Employee pay, and how it is set.
8. Increases in the cost-of-living.
9. Compulsory union membership.

Surely we can agree that issues such as these are of great importance from the employee's point of view. But it is precisely here that management usually gets that peculiar form of hoof-and-mouth disease that has only one symptom—silence. Plenty of evidence substantiates this "Zone of Silence", including studies made by ELRIC and the Opinion Research Corporation. *But,* for the most dramatic test of all, just select at random several of the 8,000 employee publications on which business annually spends about $150 million, and search their columns for forthright persuasive management statements on any of these issues.

SOME of us fancy that we're being forthright when we mass-produce millions of vapid words about the free enterprise system. If someone would only patent that approach, maybe the rest of us could be free of it for 17 years—and get on with the vital business of communicating with employees on what is worrying *them* at the present time.

Admittedly, it's most important that all of us do everything we can to bring about a better understanding of our American system. But we'll do far better if we talk less in pleasant-sounding abstractions, and talk more about specific issues which are of key importance both to employees and to the nation as a whole.

Employees worry about mournful pronouncements that automation will create breadlines. We know that this is pure pap, but we usually say so only in staff meetings.

Employees are told that the presence of motion picture cameras or stopwatches on the plant floor signal a greedy "speedup" effort by management. We know that these are merely methods of determining what constitutes a fair day's work for a fair day's pay—and is part of our constant effort to stay competitive and maintain employee job security. But we seldom tell this story to employees.

Employees are told that compulsory union membership is good for them and good for the nation. Many of us disagree, believing instead that forcing employees to join a union as a condition of employment is just as bad for all concerned as were the "Yellow Dog" contracts—that earlier, undesirable practice of forcing employees to agree *not* to join a union as a condition of employment. But how many of us in management take a stand on this issue of compulsory unionism, and communicate it to employees?

Some of us vigorously support the view expressed by the Koppers Co. president in the Harvard Business Review last year—and have been very forthright about such issues as tax legislation and public power. We can applaud this courageous stand. But we can still observe that such matters as the guaranteed annual wage, and "Right to Work" laws are certainly of direct, current concern to many employees. And we all know that the management which has talked frankly to its employees about GAW or "Right to Work" is about as rare as a whooping crane.

Employees are subjected to a continuous barrage of anti-Taft-Hartley arguments. Most of us think the Act basically is sound, but we tend to state our views only in the safety of our panelled offices.

Inflationary forces in the economy bring increases in the cost of living and drive prices of our products up. Our employees are led to believe that this is caused by greedy businessmen, who are profiteering at the expense of the working man. Management's answer usually is "no comment."

Why do so many of us have this head-in-the-sand attitude? Why this curious, illogical "Zone of Silence?" There are many complex, casual factors involved here, but the evidence suggests that at least one of the reasons for our lack of forthrightness is simple habit—a bad habit of automatically dismissing any suggestions for forthright communication by indulging in quick, unthinking use of convenient and shopworn excuses. Let's examine together the validity of six of the more common alibis used to justify this tongue-tied affliction which seems to overpower most businessmen at just that moment when it's most important for them to speak up.

Number one on the alibi parade is this little gem: "*If We Speak Up, Our Message Will Be Called 'Propaganda'.*" Now, certainly, we should not distort the facts, present half-truths and otherwise engage in "propaganda" in its evil, popular-connotation meaning. But the issues get more sharply in focus if we avoid the semantical swamps. We obviously are in the business of mass persuasion. We persuade people to buy our products. We persuade the public that we are good corporate citizens. We persuade employees to observe good safety precautions on the job. Why should we suddenly get a blind spot when it comes to persuading employees that their own best interests require a fair hearing of *management's* views on employee-centered controversial issues? I submit, Ladies & Gentlemen, that we are selling short the employee's sense of fairness when we so hastily assume that he will object to an honest statement of how we stand. If our deeds have been right—if we've treated that employee fairly, he will rarely resent giving our views a fair hearing—regardless of whether he happens to agree or disagree with the position we take.

ALIBI Number two is . . . "*If We Speak Up, We'll Lose Credibility With Employees.*" This glittering little half-truth is a favorite of the ostrich set. "Look," we are told, "we just had a readership survey and the employees rated the publication 99% in credibility! They only gave a 51% credibility rating to the union publication!" This sounds good until you look at the employee publication. It has usually been cast, not in the image of an incompetent editor, as we so often hear, but in the image of their bosses. The front page features a four-column, boxed message from the president, which, in three thousand words of deathless prose, forever enshrines the nobility of the concept of "teamwork." The editorial on page 2 urges employees to drive safely. Page 3 has a total of 482 names contained in gossip columns with screamingly funny titles like "Stockroom Scuttlebutt". Page 4 presents enchanting photographs of vacationing employees, displaying 3-inch grins and 6-inch bluegills. Such a publication is very aptly called a house organ, since one definition of an organ is "A wind instrument." The only puzzling thing about the magnificent, 99% credibility rating is how to account for that missing one per cent.

The union publication, on the other hand, doesn't seem to regard its credibility rating quite so seriously. Its front

page may call in ringing terms for the election of Stevenson or Morse or Williams or Clark or someone else deemed to be dedicated to the best interests of the working man. Elsewhere in its pages it may denounce automation, Taft Hartley, corporate profit, "Right to Work" laws, and businessmen in general. Now I'm not suggesting that management endorse specific candidates for office. Nor am I suggesting that there's no place in employee communication for warm, chatty items which are purely entertaining or informational in nature. But I am suggesting that to regard 100% credibility as the supreme goal reflects the misguided notion that employee communication is an end in itself. Just what good is 100% credibility if it's built on a base of never having said anything on those issues most important to employees? A recent Opinion Research survey asked employees to state whether business, government or union leaders were primarily responsible for improvements in living standards and individual freedom. Business leaders, in this significant and broad-sample survey, ran emphatically last, behind union and government officials. But, in the face of evidence such as this, too many of us still console ourselves with anemic publications and impeccable credibility ratings!

Alibi Number 3 takes some such form as *"It's Too Risky."* The thinking here is that to take a position on a hot issue involves risk—perhaps the risk of losing prestige among our employees if a given issue finally is resolved in a manner not to our liking—or perhaps the ever-present risk that to be openly partisan may boomerang, and solidify employee opposition to the management stand.

THE MOST glaring fallacy of this alibi is the *false* assumption that there is *no* risk in keeping quiet. To the contrary, the evidence is terrifyingly abundant that the greatest risk of all is silence. In this modern, industrial society there is no such thing as a communication vacuum. Our employees are regularly exposed to hard-hitting anti-management arguments. Some of the anti-business spokesmen are honest men. But most are irresponsible demagogues who quickly rush into the void created by management silence. They fill the eyes and ears of employees with lies and distortions. Their aim is to generate discord, to create class conflict and to convince all concerned that management consists of hideous creatures who have dollar signs for eyeballs and a secret desire to make every office and every plant a sweatshop. But the point is, that regardless of whether the anti-management tirade comes from honest men, do-gooders, or demagogues, *by our silence we too often stand convicted as charged.*

When an institution remains silent in the face of years of flaying, smearing and condemning of its actions and its intentions, common sense should tell us that many people will become convinced that the charges are true. This is how the "big lie" becomes truth. But, if more objective evidence is needed, let's consider a conclusion which may be clearly drawn from an extensive study at Yale of factors influencing attitudes:

> *"From the moment an untruth is aimed at an institution, it must be attacked vigorously and revealed for what it is, for if it is allowed to go unchallenged, in a short time, it is likely to be accepted as the truth."*

Alibi Number 4 is *"We'd Be Going Over the Union's Head."* Many companies which deal with unions seem to believe that for management to communicate directly and forthrightly with employees on controversial subjects somehow abrogates a right held exclusively by union officials. Where this kind of curious thinking predominates, it's not unusual to find a situation where a union official can press a button today, and paralyze production in all of that company's plants tomorrow — with or without giving the employees a reason. And if he does give a reason, and it's *not* a good one, the company often seems powerless, even with truth and logic on its side, to persuade the employees to ignore the walkout order and come to work. Those of us who are in such a situation should be pondering Lord Acton's warning that "Power tends to corrupt, and absolute power tends to corrupt absolutely." There are many elements in the accumulation of power. But, apart from a past record of deeds, perhaps the most important single factor is a freely-used system of communication with the people whose direct actions are decisive in any controversy. The only basic power which exists at the bargaining table is the support of the employees. And how can management expect employee support if it has never communicated its stand on the issues? This silence, in effect, gives the union a virtual communication monopoly on the truly important issues. Bernard Berelson, one of the nation's top social scientists, warns us of the clear and present danger of a communication monopoly. Here are his words:

> *"This is of central importance: communication has effects upon converting opinion under conditions of monopoly which are* much greater *than its effects under conditions of competition. . ."*

In plain English, this warns us that if we shut up we'll probably be shut out. To be forthright is not being anti-union. It is being pro-employee. No responsible businessman or union official would seriously deny the other's right to state honestly his view on employee-centered issues. But management is waiving that right, when it justifies its silence with the pious statement that "We mustn't go over the union's head." Indeed, we are abdicating our moral responsibility to act in the best interests of our employees. Surely, our generation should need no reminder that appeasement is scarcely a workable formula for meeting controversy.

ANOTHER excuse we sometimes hear is that . . . *"The Trade Association Can Do This Job For Us."* In the interests of time I'll say here only that employee communication is what DuPont's Harold Brayman recently called it—strictly a "do it yourself" deal. If management can't face up to the problem, there's scant hope that employees ever will be effectively exposed to the management view.

Last on my list is a grouping of alibis. I call it the *"Barnyard Chorus of Folklore"*. This is a small collection of some of the most frequent defense mechanisms management uses. There are many variations of these, all as much out of place in our industry society as a blacksmith forge. But this grouping, with or without music, goes something like this: *"Don't stir up the animals"—"Let sleeping dogs lie"—"You can't win a contest with a skunk"—"Never wrestle with a pig, you'll both get dirty."* Now, once and for all, let's face it. These "old wives' tales" usually are simply convenient and glib alibis for cowardly behavior or communication ineptness. It is stupid and shortsighted to shut our eyes and pretend we have no audience. Our employees are there. They are listening. We must speak or suffer the sad consequences of silence! And the common assumption that management cannot be forthright without degrading

itself is ridiculous. Silence and mud-slinging are not the only alternatives. It's both possible and desirable for management to speak up with dignity and with honest conviction. Still another assumption inherent in this "Barnyard Chorus of Folklore" is that we'll somehow penalize ourselves if we take the initiative in employee communication . . . that if, say, automation is not at the moment being attacked by anti-management spokesmen, that, therefore, we should avoid communicating about it. But why must we always wait for our nose to be bashed in before we begin to fight? Thoughtless reliance on glib alibis like "Let sleeping dogs lie" is one reason why the defensive posture is traditional with businessmen. This "barnyard-chorus" type of thinking so many times prevents management forthrightness until *after* a strike, or some other catastrophe has occurred. Thus, the "folklore" obscures what ought to be apparent; namely, that the company which remains silent until it's in bad trouble can expect few results from too-little and too-late communication.

SPACE does not permit the identification of other common alibis for management silence, nor a discussion of such things as the most appropriate timing, channels and content mix of employee communication on controversial issues.

I want to make it clear, however, that I'm not suggesting that every company should start firing controversial bombshells next week. Experience suggests that there are four prerequisites to management success with this kind of communication:

1. First, that management has a record of trying to do the right thing—voluntarily—in the balanced best interests of its customers, employees, shareowners, vendors, and the general public. Certainly no company which has been treating its employees unfairly should bother getting forthright on controversial issues. Words without good deeds are as useless as a candle in a blizzard.

2. Second, that effective communication needs to be sold in as a basic function of managing the enterprise; a way to improve employee-employer understanding; a way to upgrade performance in waste, spoilage, quality, productivity, absenteeism, and turnover; in short, a way to make money, not a way to spend money.

3. Thirdly, the communication function must be properly organized and integrated into the basic line organization—so that effective planning and measuring of the effort can occur. It is becoming apparent to many companies that internal and external communication effectiveness can be maximized if the public relations and industrial relations functions are combined under one executive reporting directly to the president.

4. Finally, communication has got to be practiced not just as a downward barrage from management, but as a dynamic, two-way process involving employee participation, and a demonstrated desire by management to *listen* as well as to speak.

But many of us who substantially meet these requirements are still slaves to the "Zone of Silence." We still stick to metal-cutting and paper-shuffling while our employees deliberate and come to decisions on job-connected, social, economic and political issues. We still slink off and are inconspicuous while some fuzzy-thinking character regurgitates Lincoln Steffens, or Karl Marx, or Harold Laski, or Berle and Means. We still suffer in silence as some self-appointed Messiah plays back the bad business practices of an earlier era, and attempts to convince all concerned that the same things are characteristic of business today.

This kind of management silence is wholly illogical. Certainly, the business system is far from perfect. But let's stop letting our detractors persuade the public and our employees that the occasional exceptions to corporate good behavior are typical of the whole structure. There is no good reason why we should forever remain silent or on the defensive. Communication, and particularly employee communication, gives us a powerful, new management dimension. We've got plenty to be proud of, and plenty to talk about! We have the overall good intentions and remarkable achievements of American business during the past 15 years of war and peace. We've got exciting vistas of future progress which stagger the imagination, and which promise to bring better living for all the people. And, if we can keep our system free and competitive, these future prospects are far more possible of realization than any planned Utopia from Plato to Bellamy. But we've also got the issues of today, almost every one of which, in one way or another, threatens the continuation of our free system, and we can face up to them.

We have a growing mass of evidence that a respected management *can* be forthright on the important issues, *can*, at best, substantially and favorably affect employee opinions and actions, and *can*, at the very least, get a fair hearing of its honest views. The experience of several concerns, including my own company, General Electric, can be cited as evidence.

There's nothing new or revolutionary in most of what I've said. The fact of the "Zone of Silence" is indisputable. The cause, the full range of symptoms, and the cure are matters of opinion. I don't think anyone has all these answers yet. But shouldn't we stop regarding these crucial areas as a kind of family skeleton? Let's face up to them, discuss them, debate them, and throw the white glare of logic on them.

Everyone in our kind of work is basically in the business of *pleasing people.* Surely it would be fatal to us if we could not comprehend what is *important* to people. And yet, how many of us who share the responsibility for communicating with employees can look deep inside our hearts and say with conviction, "We've been communicating with employees primarily on matters of top importance from *their* standpoint"?

IT SEEMS to me that we should be forthright because this is the essence of the democratic process—because of the conviction that silence is *not* in accord with dignity and respect due our employees, and because common sense tells us that *informed* employees are not easily persuaded to take action damaging to their own best interests.

I'd like to conclude with a restatement of my basic theme:

1. That the great majority of those of us who are responsible for employee communication too often use weak alibis and unthinking defense mechanisms as excuses for staying *inside* the "Zone of Silence" on top-importance, employee-centered issues—and,
2. That this is truly an employee relations pitfall, because by our lack of courageous forthrightness we are likely to stay *outside* the hearts and minds of our employees!

An observation made more than a century ago by a perceptive Frenchman is quite relevant. Here's what he said:

"Truth may not only be violated by falsehood; it may be equally outraged by silence." ■

Given as a talk before the 9th National Conference Public Relations Society of America, Milwaukee, Nov. 26, 1956.

Applying Some Modern Methods To The Small Plant

By Robert P. Haynes

Plant Manager
Jaffrey Mills
Jaffrey, N. H.

THERE are symptoms indicating that the small plant is the number one management problem of the United States. We see feature stories about the plight of the small manufacturer; there are cries for aid for small business; in talks with managers of small businesses one hears a recital of long hours and small returns; statistics are often quoted that the percent of failures is much higher among the smaller units. We could go on but we don't want to fall into the usual rut that is followed whenever this problem is approached; talking ABOUT it rather than what to DO about it.

Some of the problem can be explained as a matter of statistical sampling in that a small business is a small sample and thus deviations from the norm are greater than in a large business which represents a larger sample. As a result some small businesses are more as well as less successful than large ones. (In fact every big business is but one or more small businesses that were successful). On the other hand we felt that the problem results from the type of management practiced by small businesses and this feeling was strengthened when we would discuss modern management methods with many small plant managers. In too many cases they would display one of the symptoms of poor management such as the "It wouldn't work for us; we're too small." Most of our experience has been with larger companies, but we did not see why the same general principles wouldn't work and longed to put them to a test. About six years ago the opportunity presented itself to manage a small plant and, thus, to try some of these ideas. To make the test more conclusive, our experience in the industry was very limited so we couldn't rely on a vast storehouse of technical know-how to pull us through.

In the six years we have been on the job production has been increased substantially, yet the number of employees has decreased. Overhead has been reduced in the face of rising prices of all of its components. Records have been made in safety. The exact figures are confidential, but there is ample proof that modern management methods will work even in a small plant. The question that probably arises at this time is "How can some of these modern management policies be applied to the small plant"? The question is to be expected because most of the articles that appear in management publications or papers given at management meetings deal with techniques that have been worked out for the very large companies. These large companies have management engineers and others who are constantly working to perfect management techniques—to put it into production terms, the volume is sufficient to warrant more extensive tooling—thus, it is to be expected that the advances would come from them.

A great many managers of small plants never attend these meetings and there are undoubtedly many who give but a cursory glance at management publications. The ones that do often repeat the old refrain "It won't work for us."

When a person says "It won't work here," what he probably means is that

ROBERT P. HAYNES went to the Jaffrey Mills plant in 1949 from the position of Administrative Assistant at Chicopee Manufacturing Company. From 1941 to 1947 he was a member of the Executive Committee of General Ribbon Mills. Prior to that he served with the Methods Engineering Council of Talon, Inc. Mr. Haynes received an A.B. in Economics at Stanford University in 1933, and has since studied Mechanical Engineering. He is currently a member of the S.A.M. Boston Chapter, and served as president of the S.A.M. Manchester Chapter from 1953-54.

he cannot see any way of making it work, or perhaps it won't work in that exact form.

Thus there seems to be a need of discussion of some management techniques and their applications to the smaller companies. In the examples that we will discuss we do it not to point out that they represent the *only* solution or that they represent the *best* solution. Our aim is to show that philosophies of modern management can be adopted to almost any situation. The technique will vary from place to place; the important thing is that there is a technique that can be devised to help.

Communications

It is different to pinpoint a certain aspect of a program as being the most important. It is our belief that a successful manager must be well versed in all management branches instead of being a specialist who does an outstanding job at his specialty and merely glosses over the other phases. However, when we think of the overall program we find the matter of communications playing an important part in almost every phase and for that reason will start with that. It is also, as we point out later, indicative of the general management philosophy one follows.

Another reason for taking up communications first is that it is given so little consideration in most small plants. The usual thinking being that the outfit is so small that everybody knows what is going on. It has been our experience that except for a plant of a size that can be contained in one small room, most people do *not* know what is going on. Again, the ones that do know something have a story that is so limited as to facts that it usually does more harm than good.

For example, the company plans to buy one machine but rumor has it expects to buy six. So everybody wonders why "The Brains" think we need six. Again, the rumors coming out of a negotiating session are so fantastic that the final settlement can look pale by comparison.

It would seem, however, that even if we assume that informal communications are disseminating the inforamtion, thus formal communications are unnecessary, we overlook three very vital points—points that go right down to the bedrock of the type of management you use.

The first point concerns the source of the information and all it implies. If we put ourselves in the employees' shoes we find there are two basic ways to hear plant news. One is at lunch time from Joe, whose sister-in-law works up front and got the dope when she overheard two of the big boys talking about the new machine the company was buying. The other is from formal communications that the company issues.

Consider the effect of Joe's rumor on the operators of the old machine; the company hasn't said anything about this purchase so they must be trying to pull a fast one. Perhaps it will eliminate a lot of jobs, so "they" are keeping it quiet so "we" won't quit before the new machine is in full production. Older employees, who are protected by seniority against lay-offs, may wonder if the new machine will be too complicated for them to master. Thus fear and distrust are created, and the company and the management are put in the position of being a separate identity trying to "put something over" on the sly.

We have found that rumors flourish as well (or better) in a small plant as in a large one, and when rumors bring the news to employees it is easy for them to assume that the company acts in an arbitrary manner. The formal communications on the other hand shows that the company has nothing to hide and is keeping the other partner posted. If you have difficulty realizing the different effect of the two methods of communication, compare (1) Having your wife tell you she was having luncheon with an attractive male friend and (2) Hearing about the same event from a third party.

The second point concerns the "why." There are times when information that comes through the grapevine is 100% accurate, but we have yet to hear a rumor that contained a constructive "why". I think nobody is so naive as to think that after Joe tells about the new machine the company is buying he adds somthing like "and with this improved machine our unit costs will be lowered to such an extent that we will be able to get more orders, thus providing us with additional job security." Management cries they are misunderstood, yet if they rely on Joe to tell the story, what else can they expect?

If employees are not interested in the company it is because nobody has taken the time to give them any background. Employees are human! Changes in the plant determine whether the plant goes ahead or backward, thus have an important bearing on the employee's economic picture. He is interested in the event and wants to know the "why" of it.

The third point involves the matter of continuity. There are times in the history of any company when management must speak bluntly to the employees. It may be that discipline has gotten out of hand; it may be that unusual demands of customers call for special effort and emphasis or perhaps the competitive position has deteriorated to the point where drastic action is required. The usual solution is a barrage of communications. The result? What is your reaction when some dormant salesman suddenly springs into action and floods you with literature, phone calls and high pressure selling about some item in his line? Don't you suspect an "angle"? Don't you draw back rather than cooperate?

The reputation of any means of communication must be built by itself—if over a period of time the readers find that a branch of communications is truthful, they will begin to believe it. The more of these experiences the reader has, the more fixed the reputation becomes.

Thus, if we expect a time will come when we will need to effectively communicate, a regular program must be started long before the need arises. The program will then have time to build its reputation to where it can carry the load.

THE CASE for formal communications is that in small plants as well as large it provides the employees with *more* information; factual information that helps to create a mutual trust as it comes direct from management; information that can contain the "news behind the news," and information that, through its regularity, can develop its own reputation.

There is one warning that should be expressed, however. The case on paper sounds perfect, but it must be noted that in many situations this approach is quite revolutionary and people seldom have an immediate favorable reaction to revolutionary changes. In our particular case the employees had been given a minimum of information, and a formal communication program is not practiced in the town or near enough for them to have had contact through other employment or friends. For that reason the first reaction of our employees was to wonder what it was all about. So many employees have such a basic distrust of management that

it is natural that almost any new approach is met with the following reasoning: "If they say that, what do they *really* mean"? We do not think this program brought any beneficial results within a year and as much of it involves alteration of subconscious thinking, the full realization of the benefits came even later.

Granted there is need for communications in the small plant as well as the large, the question then becomes: "What can the small plant do"?

We are a firm believer in the premise that each problem has its specific solution. But, in general, the answer is the same whether the plant is large or small —the plant should communicate. Once that policy is made, the details are more or less determined by the conditions of the particular plant.

The backbone of our program is a weekly news sheet, typed and posted on the bulletin board of each room.

THIS news sheet has few personal items because we feel its main function is to tell the employees about what the company is doing. There is also a side issue in that we feel that the reporting of personal items represents an intrusion into the personal life of the employee. Exceptions are sometimes made on noncontroversal items such as when an employee receives favorable mention in a news report or family has a baby. Articles deal with things the company is doing and why. Examples of some of the topics covered:

1. Purchases of new equipment; the reasons for it and results expected.
2. Retirement of an employee and how eleven people got promotions in the chain reaction started when the vacancy was filled.
3. Changes in items being produced and the reasons for it.
4. Explanation of a method change designed to reduce waste.
5. Safety items (described in more detail under the discussion of Safety).
6. Notices of birthdays and wedding anniversaries (we keep the husbands from forgetting)!

The main point is that we think a plant should communicate, so we communicate. We do not beg off because we feel our style of writing is not professional. We know that if we do not communicate, Joe will and his style is not any better than ours. We find time to do the job because we know that the time spent saves time that would otherwise be spent repairing damages because of lack of communications. (In addition, as one gains experience at the job the time required is reduced).

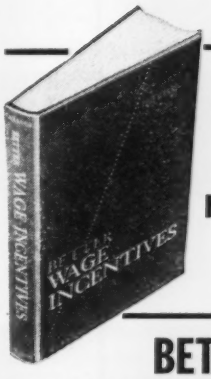
Another communications problem arose from the fact that the newspaper coverage of our town is so poor it was felt that for the employees to have a better understanding of the company's position they would need much more information about the industry as a whole. To try to step up the newspaper coverage would not improve the situation to the extent needed because our industry represents but a small part of the area picture, thus receives small coverage. To put excerpts in our weekly news release would destroy some of the authenticity of the article and perhaps serve to discredit the news sheet. The solution decided upon was to create a routing slip of pertinent news items and articles found in various papers and trade journals, to be posted for one day on each bulletin board. This same system is also used for cartoons and articles that have special citizenship significance such as Benjamin Fine's education articles from the New York *Times*.

Perhaps mention should be made of another item even though it isn't a part of the "official" program. A few years ago, after we had finished reading our copy of the *Wall Street Journal*, we wondered whether anybody in the plant would want to read it. For an experiment, we tacked it up in one of the rest areas. Ever since then the chief item of interest for visitors to the plant has been the attention the paper gets from the employees. In addition, copies after posting are now shared by two employees.

A final item of communications, as we have been using the term, is the development of cooperation with the local papers. Among the articles we put in our weekly news letter are some that have news value outside the plant and on an average of once every month or two re-written copies are sent to the local papers.

Supervisory Training

Another blind spot with most small plants is the training of supervisors. The reasons are probably partly psychological and probably due to the fact that the heads of many small plants have had little contact with training programs, thus do not have an appreciation of their advantages.



NEW BOOKS *for* MANAGEMENT MEN

BETTER WAGE INCENTIVES

Just Published. Tells how to set up and effectively maintain a good incentive program; shows the various types of incentive grievances, how to plan to prevent them, and what to do about them if they do arise. Includes information on incentives for foremen, how to prepare for incentive arbitration, and economics of incentives. **By Phil Carroll, Prof. Engr. 230 pp., 70 illus., $4.75.**

WORK SAMPLING

Just Published! Covers the technique of work sampling. Clear, step-by-step instructions are given for planning a study, carrying it out, interpreting the results, and taking action on the basis of the results. Case studies give examples of the application of work sampling to office work, maintenance crews, hospital and department store activities, etc., etc. **By R. E. Heiland and W. J. Richardson, Lehigh U. 256 pp., illus., $6.00.**

PRACTICAL AUTOMATION

Just Published. Shows how to install and use plant automation for increased productivity, lower operating costs, and improved safety and working conditions. Gives scores of examples of successful installations from plants of all sizes in various industries. Automatic handling, processing, inspection, and communication are some of the topics covered in a way that helps you plan ahead for successful automation. **By L. R. Bittel, M. G. Melden and R. S. Rice,** *Factory Mgt. & Maint.* **376 pp., illus., $7.50.**

TECHNIQUE OF EXECUTIVE CONTROL

Just Published. 8th Edition. Discusses the basic situations in which an executive is required to act—covers relationship with subordinates, associates, and superiors—and helps you select the tools for managing employees most effectively. New 8th Edition has added chapters on executive self-development, executive creativeness, and executive delegation. **By Erwin H. Schell, MIT. 357 pp., $5.50.**

10 DAYS' FREE EXAMINATION

McGraw-Hill Book Co., Dept. ADM-9
327 West 41st St., New York 36, N. Y.

Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep, plus few cents for delivery costs, and return unwanted book(s) postpaid. (We pay delivery costs if you remit with this coupon — same return privilege.)

☐ Carroll—**Better Wage Incentives, $4.75**
☐ Bittel et al—**Practical Automation, $7.50**
☐ Heiland & Richardson—**Work Sampling, $6.00**
☐ Schell—**Tech. of Executive Control, $5.50**

(Print)
Name .....
Address .....
City .....Zone ....State .....
Company .....
Position .....

For price and terms outside U.S. write McGraw-Hill Int'l. N.Y.C. **ADM-9**

When we took over this plant we told the supervisors that the customary thing in our industry was for the plant manager to be a super-foreman, but we were going to attempt to reverse the procedure by preparing the foremen to run the plant. One of the first steps was to set up a weekly meeting so that the program could have a more definite approach even though there never has been a formal curriculum as the training has tended to follow the needs. For example, we found that the foremen had never seen the weekly report of actual and standard labor costs. When we discussed the report with them we found that it did not mean much to them because they had no idea what it represented. The need was evident, so meetings were devoted to this report and its derivation until a general understanding was reached. Having an understanding, the supervisors now follow these reports as though they were big league standings.

These meetings also allow the entire group to benefit from the experiences of each on such items as unusual labor relations experiences, accidents, method improvements, etc. Prior to vacations, the method of determining the vacation pay is discussed, and changes in Social Security bring a discussion of that. There always seems to be some change that needs a discussion and when we run out of changes it will probably be because there is no longer a plant.

A second and more informal meeting occurs each morning, combining a coffee break with a review of invoices and pertinent items in the morning mail.

A small plant seldom has the reserve manpower to enable people to be away from the plant long enough to take advantage of many of the courses that are given and it is usually too small to warrent bringing courses to the plant. That does not mean that the door is completely closed on courses however. A good one-week course is sponsored jointly by the SAM and a nearby University and our state university holds an annual weekend conference. Naturally, these brief courses cannot supply too much technique or factual matter, but they do provide a look at things beyond the four walls and perhaps an opportunity to put the job in the proper perspective by letting the supervisor find out others have problems similar to his. They also serve to jog a person out of the nice complacent rut we all find it so easy to fall in to. Much of the same purpose is served by attendance at the regional meetings of the Industrial Management Club, visits to other plants in the area and subscriptions to various "foremen letters." We speak of "various" because it has been our experience that more interest is shown if the media is changed after a year or two.

ANOTHER device we use might just as well have been discussed under communications as under supervisory training as it involves communications between shifts. Multiple shift operation creates many problems in that each shift foreman has responsibility for his shift, yet he is still affected by and effects the operations of the other shifts. Some liaison is accomplished by the conference the foreman have at the change of shifts, but this is limited to the ability of their memory — unfortunately this memory test occurs at the worst possible time in that the foreman is tired from the work of the shift.

To knit the group together in a more effecctive unit requires a more formal approach and thus we keep a "log" in which each foreman enters from time to time during the shift the significant events that occur. One of the first things the incoming foreman does is read the entries of the past two shifts, so he gets a picture of what happened involving the men, materials and machines.

Perhaps more important to the training than any of these material things is the general philosophy followed in determining how the day-to-day problems are handled. It is assumed that the plant manager can handle many of the duties of the department better than the foreman, thus there is a strong inclination to step in to avoid mistakes or to handle the matter more expertly. Again, there are many instances where it is easier and quicker to do the job than to show how it should be done. However, if the plant manager is always fielding the ball you have all the drawbacks of a one-man team. The best outfielder in the big league can't cover

S.A.M. *Rating of* TIME STUDY Films

A DO-IT-YOURSELF suggestion: Take pictures of your bench-mark operations. Splice them in the S.A.M. Films of known ratings. Thus you can establish ratings for your own operations.

Eight reels depicting 24 typical manufacturing and clerical operations alternately shown in five separate scenes. Composite time-values, based on the judgment of 1200 experienced time-study men, afford comparison with the national average.

NOW IN USE THROUGHOUT MOST OF THE FREE WORLD

as
- **The Classical Reference in Training and Refreshing Time Study Men**
- **An Objective Ground for Settling Standards Disputes**
- **A Swift, Economical Means of Achieving Rating Consistency Towards A Fair Day's Work**

For further information: Research Division

Society for Advancement of Management

74 Fifth Avenue • New York 11, N. Y.

the whole outfield as well as three mediocre players from AA ball. In addition, when that man is sick or on vacation, choas results.

Probably a more serious result of this kind of "training" comes from the effect on morale and development. It is difficult for a foreman to develop pride and propriatory interest in his work if he is constantly being given the implication that he can't do the job—that the boss must forever step in. He can't develop his batting eye unless he gets a chance to swing the bat now and then. If you know your answer is never going to be used there is little incentive to think a problem through. The good men will leave and remaining ones, who are content to be flunkies, are not creative enough to do a good job. It is similar to the situation that keeps many sons from working for their father.

If the organization is to develop, the person heading the organization must have a training philosophy; he must delegate responsibility, must be ready to charge up to training the occasional mistake that results. His ego must be inflated not by the plays he makes but by the eventual plays his team makes. The manager must not be a fountainhead of information answering all questions, but a teacher drawing out the answers from the questioners. He must have the philosophy my grandfather used to express when I would beg off from new jobs, "You'll never learn any younger!"

Safety

There are number of good arguments for a safety program: some stress the dollars and cents benefit; some the morale effect and so on. But as far as we are concerned, the clincher is that we have never seen what we considered a "good" plant that didn't have a good safety record. The past record here was not too bad if you compare it with the average of the industry, but after a talk with the insurance company representative and a comparison of the figures with those of plants that were doing an outstanding job, the challenge was clear.

The first step was more or less physical in that the files contained recommendations from the insurance company and also from the state department of labor's inspectors. It was easy to see why some of these were ignored because they were of marginal value. But as we wanted it known that we really stood behind our safety program, one recommendation after another was carried out. Previously we had said that we considered our newsletter one of the key items because it was tied into almost every program. We consider it indispensable to the safety program because it provides a method of bringing safety to the employees attention from time to time; for example, as each reported hazard was eliminated, mention of it was made in the news. Safety is mostly selling, and selling is easier when helped by advertising.

The next step was the routine one of the creation of a safety committee to bring additional thoughts into the program. Perhaps the best idea that came from them was when one member arose and said that he had been through a Du pont plant and had noted that they gave awards for going specified times without an accident. The committee liked the idea and an award was set for going five months, the previous record without a lost-time accident. After a false start the five months were completed, the award made and a dinner was proposed for the completion of a year. It turned out that three dinners were won before that span was broken.

It is said that experience is a good teacher. We tried to let as many people as possible benefit from any safety experiences by putting a description of the minor accidents in our newsletter. If there wasn't an accident to report some other method was used to bring safety to their attention such as reporting the time since the last lost-time accident or items comparing the safety records of men and women.

Although the policy of locking the barn door after the horse is stolen is derided, we have taken the attitude that we still lock it as we want to protect the other horses. Thus each accident is analyzed to see whether changes should be made to prevent a repetition here or in a similar spot. The result is that for the last million man hours, time lost from accidents is but 18% of the industry's average.

Industrial Relations

Industrial Relations are looked upon more as an emotional attitude than a technique, thus there is little left to discuss in this catagory. The communications program, the training efforts, the work done on safety, all do their part toward improving industrial relations toward the development of a feeling of togetherness to counteract the efforts at separation.

The problem has different aspects in different situations and the first step is to try to discover what particular form the feeling or attitude has taken, then decide what steps can be taken. One feeling, we discovered, was a fear of the "front office." About that time it was necessary to make a change in the disposition of the canteen profits and because it seemed to aid with this problem as well as having other industrial relations benefit, it was decided to try a system of getting certain textile products of general appeal for distribution as "dividends."

This gives the foreman an opportunity to contact the people to find out colors, sizes, etc. Then, as the articles are picked up at the office, this favorable experience is one step toward destroying the fear of the "front office."

IN FACT, one could probably make a case out of the fact that good Industrial Relations should be nothing more than the elimination of fears. While that isn't our aim, mention should be made of two of the biggest fears of the average worker: fear of lay-offs and fear of discrimination. It is felt that any Industrial Relations program is worthless without a major attempt to minimize these fears.

The fear of lay-offs is so pronounced that it is no wonder that the average worker does all he can to buck new machines and methods. That fear is found in a small plant as well as a large one, and an attempt to allay it was made by doing everything possible to see that improvements did not mean lay-offs. On this point a small plant is different from a large one in that there

Have You A 'Best Seller'?

ADVANCED MANAGEMENT invites articles dealing with all phases of management in business and in industry.

Of special interest is material dealing with the practical application of management theory, written by practicing management men — case histories which give a down-to-earth account of methods used to apply some practical new development or idea, with details explaining how it was done and results of the experiment.

We feel certain that many S.A.M. members have material for articles which will be of great interest to our readers. We hope those who do will find the time to put their ideas on paper so that others may share their experiences. Also, our magazine, with a world wide readership of over 50,000, is a spendid showcase for new ideas.

S.A.M. Research Publications . . .

A survey of

TIME STUDY POLICY AND PRACTICE

in the U. S. and Canada

A quantitative analysis of:

- **297 Plants**
- **180 Companies**
- **17 Industry Classifications**

This is a report issued January 1955 by the SAM National Research Committee on The Project, Aptitude and Proficiency Tests for Time Study Personnel.

Price $1.50 *per copy*
Limited Quantity Available

COLLECTIVE AGREEMENTS ON TIME AND MOTION STUDY

by G. Jay Anyon, Ph. D.

Simplify negotiations with this handbook in which over 300 separate types of stipulations throughout a broad sampling of American industry are examined.

SAM Members: $3.50
Non-Members: $4.50

CREATIVE TIME STUDY AND METHODS

A collection of 21 articles concerned with the latest developments in the Industrial Engineering field.

SAM or ASME Members: $3.50
Non-Members: $5.00

A FAIR DAY'S WORK

- *Rating Judgments on 24 Typical Operations in Manufacturing*

The most comprehensive research ever undertaken in the field of performance rating.

SAM Members: $7.50
Non-Members: $10.00

Order from:

The Society for Advancement of Management
74 Fifth Ave., New York 11, N. Y.

are not as many opportunities of transfers. But like so many problems, the answer is usually there if enough thought is applied. So far we have not had to lay anybody off, so by now the fear of changes has almost disappeared.

The fear of discrimination is more difficult to cope with in that it concerns personalities. On the other hand, many employees have had such bad experiences in the past that they are doubly appreciative of any efforts that are made along this line. Perhaps the key is in the fact that any action at least puts the company on record as to intent.

One of our first steps was to attack the seniority question as it seemed to be an important matter with these employees. A committee was set up and this committee worked up methods of determining seniority and how these seniorities should apply. Copies of these rules and departmental seniority lists are now posted in each work area. The public posting of these show, that the company has nothing to hide and it serves as a public statement of its intent. Should a foreman try to by-pass the rules to grant a preference to a favorite, the act would be apparent to all employees at once—a chance that few foremen would want to take. In addition, it would soon be questioned by his supervisors, thus the system is quite foolproof.

Usually, job openings are posted and after the application period has closed, the list of those applying and the reasons for the choice are posted on the bulletin boards.

Another aspect of discrimination is probably the basis of serious fear concerns job security. We don't see how a person can have peace of mind if he feels that his job depends upon the whim of one person. Thus, another move was to adopt and publicize the policy that no supervisor had the sole authority to dismiss. It was carefully explained that this wasn't undercutting the supervisors as far as justified dismissals went; it merely meant that the reason had to be good enough to convince the management.

Methods and Machines

As all of the management factors discussed so far deal with matters of morale and attitudes, they have a very direct bearing on the cost picture. However, in the average situation the most direct assualt on costs will come from method and machinery improvements, and this has been our experience here. We do feel, however, that there is no need here to go into cases for this is one subject concerning small plants that has been amply treated in the technical journals.

We see no reason why the person with proper training and experience would find the technical problem in a small plant any different from any plant.

However, almost any industrial engineer we have talked to has decried not these technical problems of the job but the matter of getting acceptance of technical improvements. For that reason our main operating emphasis has been on the managerial aspects discussed earlier so that a favorable climate would be created. We gave our foremen responsibility and training and they have responded with ideas; by giving the employees an understanding of our problems and by removing some of their fears, they have become less reluctant to give their cooperation and we have been able to make our improvements.

Conclusion

We have never seen a definition of a small plant. The nearest thing to it probably is the definition that we once saw for small businesses: "Businesses employing less than 500 employees."

We think the difference between large and small plants is the NUMBER of employees. It is not a difference of kinds of employees, or a difference in their hopes, their fears or their attitudes. The contents of their lunch pails is similar, the cars they drive are alike. Why should we expect their wants in the matter of treatment on the job to differ?

The difference is one of quantity and the answer should reflect that difference and that one alone. What should the small plant (less than 500 employees) do? It should do what the large plant (more than 500 employees) does but on a reduced scale. We read that one large plant is using an electronic brain for the payroll work. That does not mean that the small plant should get an electronic brain for their payroll, but it also does not mean that they should ignore the basic problem and say, "One of those won't work for us so we will continue using pencil and paper."

The answer to the payroll calculation problem and the other management problems is the same — the use of modern management tools and techniques, but on a scale comparable to the need. ■

Leadership, Authority, And The Span Of Control

By Waino W. Suojanen
School of Business Administration
University of California
Berkeley, California

SOME time ago, in this journal, the writer raised a number of questions about the validity of the limited span of control of the executive as a principle of organization and administration.[1] This paper has created a considerable amount of interest, as well as controversy, among both practicing executives and students of management. Unfortunately, it represented only a part of the results of the writer's research of the role of management in the large organization. Since then, the writer has endeavored to develop, in further detail, substantive decentralization as an emergent theory of the organizational philosophy and practice of American business and industry.[2]

[1] *"The Span of Control—Fact or Fable?" November* 1955, *pp.* 5-13.

[2] *See, "Substantive Decentralization in Large Corporations,"* Advanced Management, *September* 1956, *pp.* 16-22, *and "Some Notes on General Theory of Management,"* Advanced Management, *February* 1957, *pp.* 17-20.

Why Substantive Decentralization?

The most striking feature in the recent development of the large, well managed, contemporary American corporation is the variety of decision making processes that have been incorporated into its structure and philosophy. Hierarchy, or control by leaders, still remains the most significant decision making process. To an increasing extent, however, other decision making processes have become important. In the control of the operating divisions of the large corporation, the price system, or control of and by leaders, is replacing hierarchy at a very rapid pace. Similarly, voting, or control by the led, is being increasingly incorporated into the decision making structure of the progressive organization. Finally, bargaining, or control of leaders by leaders, has shown a phenomenal growth in recent years.

In view of all of these recent developments, it is the considered opinion of the writer that a drastic review of management theory is necessary. No longer can we continue to teach and write about hierarchy alone. Rather, we must develop an eclectic theory which combines all of the decision making processes that are being used in our large organizations. In spite of popular beliefs, even the military has begun to recognize that hierarchy alone is a woefully inadequate process for developing identification on the part of the individual toward the organization.

Military Hierarchy and Bureaucracy

Formal organization theory originated to a large degree in the military which, until recently at least, was the best example of pure hierarchy available to the student of administration. Basic to the original philosophy of military hierarchy is the concept of command as the technique of administration. The subordinate who does not comply with an order is punished and, to insure obedience, an elaborate machinery must be established to mete out penalties. The role of leadership is recognized but formal authority, along with the system of penalties, is relied on to obtain effective action in the achievement of goals. The military hierarchy can operate in this manner because participants cannot escape; the system of penalties is extended

WAINO W. SUOJANEN has combined business with teaching, having worked for Uarco Business Forms, National Automotive Fibres and Safeway Stores, Inc., while teaching at the University of Vermont and the University of California at Berkeley, where he is currently Assistant Professor of Business Administration. Mr. Suojanen received his B.S. degree from the University of Vermont. After Army service he received his M.B.A. from Harvard and a Ph.D. from the University of California.

POSITIONS OPEN
advertisements on page 31

to embrace all those who would go "over the hill."

Necessary to the philosophy and structure of the pure military hierarchy, in addition to command authority and a narrow span of control, is a highly refined functional specialization of jobs. Because of the seasonal nature of operations and the need for rapid growth in a period of crisis, such specialization is both understandable and necessary. Moreover, it is evident that as operations are increasingly fractionated the degree to which jobs interlock is increased and the burdens of supervisory coordination are correspondingly multiplied. Thus, command authority, a narrow span of control, and a high degree of specialization are fundamentally interrelated and, taken together, imply a highly detailed supervision of subordinates by the superior.

The philosophy and structure of the traditional military hierarchy, as summarized above, constitute a bureaucracy. Bureaucracy is a method of rational organization that is supposed to be appropriate in maintaining stability and providing efficiency in large and complex organizations. Not only does the bureaucracy have a rational orientation toward particular goals and objectives; it is characterized also by impersonality and routinization. Impersonality implies that the job and the employee are completely separated so that communication occurs between offices rather than between people. Furthermore, routinization means that the activities are simple and regular so that the results of the organization can be judged solely by the criterion of efficiency.

The preceding brief analyses of military hierarchy and bureaucracy are descriptive also of the philosophy and structure that is implicit in the theory of formal organization developed by the early "scientific management" school. Recently, the debt that this early "scientific management" school owes to Max Weber's theory of bureaucracy has been twice reaffirmed.[3]

Leadership and Authority

The concept of leadership is one of the most elusive in the literature of organization. The pure theory of bureaucracy, which was briefly discussed above, abstracts completely from leadership—communication is between offices and not between individuals. The military organization has often completed its mission successfully in the absence of leadership—"tight ships" frequently perform as effectively as "happy ships." In economic theory, the function of the entrepreneur is an active one of maximizing the short run profits of the firm which, by definition, belong to him—the other participants are passive and enter into his calculations solely as costs of production.

The early students of "scientific management" relied perforce very heavily on the antecedent literature in the areas of bureaucracy, military hierarchy, and economic theory. The principles of formal organization theory indicate a quite similar lack of concern with the role of leadership as did these fields, at least until the results of the Hawthorne studies began to receive widespread publicity. Even now, a quarter of a century later, the findings of the behavioral sciences about the role of leadership in organization have been inadequately integrated into the general management literature. As a result, many firms search endlessly for panaceas to the administrative problems which exist in their organization despite very close adherence to the principles of formal organization (which include a narrow span of control).

Economic theory, military hierarchy, bureaucracy, and formal organization theory all abstract almost completely from leadership in their theoretical formulations. They ignore almost wholly the informal organization that operates within the formal and they pay scant attention to the values which are held by individual participants within the system. Leadership is considered to be a constant factor and the way in which authority is exercised is held to be a variable of insignificant proportions.

Human relations theory operates on the periphery of organization theory largely because investigators have not been able to relate their findings to any of the above frames of reference in any consistent way. In recent years, many behavioral scientists have emphasized the "group" approach as a solution to administrative problems. While there is a considerable amount of virtue in the "group" approach, it again suffers from the same incorrect appreciation to the problem of organization that is present in the other theories listed above. As Bendix has pointed out, "the analysis of large-scale organization in the modern world will be deficient as long as it makes *either* the formal organization structure *or* the informal relations within that structure the vantage point of its observations."[4] In other words, a general theory of organization must be based upon an adequate theory of leadership and its relation both to informal and formal organization.

There is no question that a well-designed, formal organization will enable the manager to do a better job of administration. Similarly, an appreciation of the importance of human relations can result in improved management. However, neither approach solves the basic problem of the large organization, that of creating a *climate* in which the personal objectives of the participants are meaningfully related to the long run goals and objectives of the institutionalized organization.

UNFORTUNATELY, This relationship cannot be created by the individual manager alone, even if one were to agree with "traitist" or "subjective" theories of leadership. The popular stereotype of the leader has been described by Elton Mayo: "Such men therefore rely upon a confident, or even jolly manner, upon knowing everyone's first name and using it, upon expedients such as saying 'Good morning' to everyone they meet."[5]

Urwick argues that "... leadership calls for as much constant personal contact as circumstances permit."[6] Later he says that "however much responsibility may be delegated, subordinates *like* to have fairly frequent opportunities of ensuring that their chief's mind is in step with their own and vice versa."[7] This subjective opinion is, in certain respects, reminiscent of the general playing buck private in a platoon while the division itself is being destroyed.

Such a theory of leadership is inadequate; for one reason, because "the writers fail to explain the nature of their sample and are quick to generalize."[8]

[3] *Lyndall F. Urwick, "The Manager's Span of Control,"* Harvard Business Review, *May-June* 1956, *pp.* 39-47, *and, "The Span of Control—Some Facts about the Fables,"* Advanced Management, *November* 1956, *pp.* 5-15.

[4] *Rheinhard Bendix, "Bureaucracy: The Problem and its Setting,"* American Sociological Review, *October* 1947, *p.* 502.

[5] The Social Problems of an Industrial Civilization, (*Boston: Harvard University Press,* 1945), *pp.* 117-118.

[6] Harvard Business Review, *May-June* 1956, *p.* 43.

[7] Ibid., *p.* 43. *Italics supplied. This writer does not agree with Urwick that responsibility can be delegated. See Harold Koontz and Cyril O'Donnell,* Principles of Management: An Analysis of Managerial Functions, (*New York: McGraw-Hill Book Co., Inc.,* 1955), *pp.* 55-56, *on this point.*

[8] *Koontz and O'Donnell,* op. cit., *p.* 65.

Leadership in the Military

In recent years, American military writers have paid an increasing amount of attention to leadership and its relation to military organization. Part of this interest has been due to the problems created by the vastly increased size of our regular military establishment. Further, our military services have discovered that command control does not create a binding sense of identification between the individual and the organization. The focus of this change in orientation is illustrated in the following:

> The soldier, like any human is governed either by "laying a club on the outside of the head or laying it on the inside." The entire subject of military training is to put this club inside his head.[9]

In the course of this appraisal of leadership, the American military writers have discarded the traitist theory because of its inherent weaknesses. The following comment is apropos of this shift:

> Attempts often have been made to study the great military leaders and to ascertain the points in common which might be used as a basis for the study of leadership. So far . . . nothing has come of this. Even in the greatest of all captains, Alexander, Hannibal, Caesar, and Napoleon, it would be hard to find common psychological qualities.[10]

It is very difficult to find in the contemporary military literature on leadership any support for the traditional principles of military hierarchy that are the basis of much of modern organization theory. They may have been relevant forty years ago, in World War I, or they may even be applicable to some armies today. However, they are obsolescent when one is discussing leadership in the American armed forces in 1957 and they are completely obsolete insofar as applying to contemporary American management in business and industry.

Today, American military authorities are developing a different concept of leadership which, in the view of this writer, is very closely related to that practiced in our substantively decentralized corporations. One writer points out that "above the battalion level, the commander has much less contact with the body of troops and the element of leadership is not as vital a factor."[11] Not only does the role of personal leadership diminish in importance as one advances up the hierarchy but its very character changes.

> The commanders of units larger than battalion strength are normally surrounded by selected staffs of officers who have progressed to the stage at which they do not need the example of a figure-head from whom they must derive the courage, will, or incentive to strive. Such persons are generally self-sufficient individuals who have been selected for their high professional efficiency, knowledge, and devotation to duty. They have come to the realization that success lies in one's own proper endeavor and that co-operation and teamwork, rather than "follow-the-leader" are the factors which ensure the success of an operation.[12]

The current military literature questions whether the "face-to-face" theory of leadership is adequate. It also inquires whether such experience may not actually be detrimental to successful leadership at the higher levels of the organization. Most of the outstanding soldiers of history have never been leaders of small groups.[13] This has worked to their advantage because top military leadership, in time of war, must rely on management techniques that are more akin to those of a *politician* than they are to those of a *first-line supervisor*.[14] *These are the requirements of high military leadership during active operations as recognized by the military itself;* yet some question their validity quite vigorously.[15]

Many outstanding military leaders have never gone through the small unit, "man-to-man" phase of leadership which is essential to the defense of a narrow span of control. In addition, military writers in the United States now argue that such experience, which some would embody into the formal structure of the organization, can actually be detrimental to the effective functioning of the high level reader.

> When the small group leader in our Army steps up in time of emergency and assumes command of a large unit, the technique which he acquired in dealing with his small unit is of little avail. Yet, it is his *only* equipment for handling men, and, unfortunately, the method of impressing his personality on the larger unit is vastly different. No more can man-to-man relations be maintained. It is an *impossibility* because of the size of the group.[16]

A few years ago the Armed Services of the United States issued the Womble Report on Service Careers in response to concern expressed by the President of the United States, the Secretary of Defense, and the Joint Chiefs of Staff ". . . about the growing lack of confidence among Armed Forces personnel in military service as a worthwhile and respected career."[17] One of the chief findings of this study is directly related to the narrow span of control and to the "face-to-face" philosophy of leadership which is its reciprocal.

> The dilution of experienced personnel necessitated increasingly centralized authority and control. Commissioned and noncommissioned command authority and consequently prestige were diminshed accordingly. The trend has been toward over-supervision. Personnel are no longer inclined to accept responsibilities commensurate with their rank primarily because they lack authority adequately and fully to discharge these responsibilities.[18]

SUBSEQUENTLY, oversupervision has become a topic of study by military students of leadership. One writer, after pointing out that oversupervision is an evil to satisfactory operations, comments as follows:

> Like ulcers and coronary thrombosis, oversupervision is an affliction that stems from the most admirable of personal traits. Energetic and conscientious people are the most likely victims of all three diseases. The big difference, however, is that ulcers and coronary thrombosis are not contagious; oversupervision is, and can spread from an individual source down through the chain of command to debilitate entire units.[19]

Oversupervision, in the military as in the commercial organization, is largely the result of an extremely narrow span of control coupled with its corollary, an insufficient delegation of authority. The

[9] *Major J. H. Burns, "Psychology and Leadership,"* Military Review, *January* 1955, *p.* 47.

[10] Ibid., *p.* 55.

[11] *Major E. B. Owen, "The Role of Command in a Technical Service,"* Military Affairs, *August* 1955, *p.* 28.

[12] Ibid., *p.* 28.

[13] *Major Burns,* op. cit., *p.* 52.

[14] Ibid., *p.* 52.

[15] Advanced Management, *Nov.* 1956, *p.* 8.

[16] *Major Burns,* op. cit., *p.* 52. *Italics supplied. In connection with the above point, it is significant that in the United States Army, the term* leader *is used only when referring to the squad, section, and platoon. Beyond the level of the platoon, the term* commander *is employed.*

[17] Army Information Digest, *February* 1954, *pp.* 24-36.

[18] Ibid., *p.* 26.

only way an executive, be he civilian or military, can acquire experience in making decisions is through having a command of his own. There is no delegation of authority in the substantive sense if the person concerned does not make his own decision. To ask that these decisions coincide with those that the chief would have made is asking both the impossible and the undesirable. As Boatner puts it:

> I have no pat formula for developing initiative and self-reliance in the individual American soldier. I have seen it very successfully done, however, in units that had a good commander who was left alone long enough to analyze the particular leadership problem and apply his own particular solution. This calls for leadership of an intelligent, imaginative type.
> *It calls for supervision whose primary purpose is to minimize the need for supervision in the future.*[20]

Empirical Leadership Research

"Follow-the-leader" theory appears to be contradicted by a carefully designed experiment which was concerned with analyzing successful leadership in small as opposed to large groups.[21] According to this study, the leaders of the large groups delegated authority more wisely and did a better job of coordination than the leaders of small groups. In addition, large group leaders worked harder than the small group leaders and reversed their decisions less frequently. Further, this study showed that the large group leaders were firmer and more impersonal: "there is a tendency for the leadership role in the larger groups to take on a greater degree of impersonal direction connected with firmness and impartiality in enforcement of rules and regulations."[22]

This experiment tends to confirm Boatner's observations on the character of oversupervision in the United States Army.[23] The military, for reasons discussed earlier, has tended to think in terms of narrow spans of control in times of emergency. The writer agrees that a narrower span of control may often be more necessary in time of war than in time of peace, especially at the operational levels of the military units.[24] There is, however, a clear indication that relying on the narrow span of control concept in combat arms in time of peace, or in the technical services, in time of war or peace can be detrimental to true executive development. Consequently, indoctrination of future general officers under a narrow span of control philosophy in time of peace may lead to serious consequences in time of crisis because of the different techniques that are required in leading the small group as opposed to the large group.

In another experimental study, Hemphill points out that the majority of followers did not feel dependent on their leaders. This study covered 500 groups of various kinds and included about 15,000 followers.[25] Most of the followers indicated that they were acting on the basis of their own individual responsibility and leaned more heavily on themselves rather than feeling dependent on their leader or nominal leader.[26] This is in contrast to the comment that ". . . subordinates like to have fairly frequent opportunities of ensuring that their chief's mind is in step with their own and vice versa."[27]

Because Hemphill's study is concerned with so many groups and consists of such a wide sample, his conclusion that "a leader's most important function in the dynamics of group behavior may well be that of maintaining group membership as a satisfying experience for the members of the group and facilitating their acting as a unit rather than as separate individuals,"[28] should not be lightly dismissed. This appears to be the case in the statement, "the resulting lack of confidence between people forces them into an elaborate machinery of committees which further restricts their time for personal contacts."[29]

Studies made by the Institute of Social Research at the University of Michigan indicate that general supervision is correlated with high output and that detailed supervision is correlated with low output.[30]

> These findings point rather clearly to the idea that supervision is more effective in motivating productivity if it is sufficiently general to give supervisors and workers the latitude they require to do their work intelligently. The findings imply that subordinates perform better if they are allowed considerable latitude in doing their work.[31]

Here, again, we have evidence indicating that the plea for more personal contact between the superior and the subordinate may act to reduce productivity rather than increasing it.

IN THE classic experiment by Coch and French, it was found that productivity increased when employees were permitted to participate as a group in designing techniques for coping with changes in manufacturing methods.[32] The operators in this study looked upon the plan as their own—not that of the boss. Total participation as a group, rather than personal contact between superior and subordinates, not only increased output, but the morale of the high output groups was higher than that of the low output groups in which the workers either were told what to do or participated through representatives. Again, the contention that frequent individual contact between superior and subordinate is preferable to contact between the superior and subordinate group (i.e., committees or meetings) appears to be disproved by experimental evidence. As Seashore points out, "it is becoming clear that the individual employee's behavior cannot be understood except in the context of the team or group of which he is a part."[33] Seashore, who bases his analysis of supervision on empirical evidence, talks quite differently about the subject of executive leadership than do writers whose approach is basically subjective.

> The supervisor who succeeds in developing an enthusiastic, productive, cohesive team is likely to be sensitive to interpersonal problems among his people; he talks of his job in terms of the group rather than in terms of individuals only; he sees himself as part

[19] *Major M. M. Boatner, "Oversupervision,"* Military Affairs, *August* 1955, *p.* 3.
[20] Ibid., *p.* 5.
[21] *J. K. Hemphill, "Group Factors in Leadership. I. Relations between the Size of the Group and the Behavior of 'Superior Leaders',"* Journal of Social Psychology, *August* 1950, *pp.* 11-22.
[22] *Ibid., p.* 19.
[23] *Hemphill's sample included 67 military groups.*
[24] Advanced Management, *November* 1955, *pp.* 8-9.
[25] *"Situational Factors in Leadership," Ohio State University, Columbus, Ohio, Bureau of Educational Research,* Leadership Studies No. 4.
[26] *Ibid., pp.* 28-41; 71.
[27] Harvard Business Review, op. cit., *p.* 43.
[28] *"Situational Factors in Leadership," op. cit., p.* 100.
[29] Harvard Business Review, *op. cit., p.* 44.
[30] *S. E. Seashore, "Basic Elements of Planning Constructive Supervision," (The Institute of Social Research, University of Michigan), p.* 3, *(mimeographed). See D. Katz,* et. al., Productivity, Supervision and Morale among Railroad Workers, (1950), *and D. Katz, N. Maccoby and N. Morse,* Productvity, Supervision and Morale in an Office Situation, (1951), *for the complete studies and their findings.*
[31] Ibid., *p.* 4.
[32] *L. Coch and R. P. French, Jr., "Overcoming Resistance to Change," Human Relations, I,* 4, 1948, *pp.* 512-532.
[33] *"Basic Elements of Planning Constructive Supervision,"* op. cit., p. 11.

of the group; he often discusses problems with his people in group meetings; he often accepts the pooled judgment of his people in forming decisions; he often gives assignments to the group as a whole rather than arbitrarily deciding about specific individual assignments.[34]

Substantive Decentralization

In terms of simple mathematics alone, it is impossible for the chief executive of the large organization to see every participant in person often enough to make such a policy operable even if it were desirable. Assume that a company has 300,000 employees and the president spends his *entire* time smiling, saying "good morning," shaking hands and repeating names at the rate of one person a minute, fifty hours per week, fifty weeks a year. At this rate and neglecting all his other duties, he would get around to each person *once every two years* for a total time of *one minute*.

If "face-to-face" leadership and "follow-the-leader" are impossible and undesirable, what is the substitute? First, it is evident that the link between the goals and objectives of the organization and the personal objectives of participants is strengthened as the overall caliber of leadership is improved. However, something more is necessary and that is creating a *climate* in which all participants can grow and develop; in which leadership talents are constantly improving.

This link between the participant and the organization can be established by a proper appreciation and understanding of the role of policy. The top leadership must be aware of the fact that policy consists of the system of values or ends of the organization. Top management must be equally aware of the cultural composition of the participants, or more broadly, they must know and understand intimately the system of values of the society in which the organization is pursuing its goals and objectives. Next, the policy of the organization must be related in a meaningful way to the culture of the society. To put it less elegantly, the policy climate within the organization must be such that the participants will have "the clubs inside their heads" rather than management "laying them on the outside."

The organization that recognizes the close relationship between its policy and the culture of the society is no longer "the lengthened shadow of one man." Instead it is an institution in every sense of the word. Participants identify themselves with the organization rather than feeling dependent upon the father image implicit in "follow-the-leader theory. This, in turn, permits the group to achieve its goals more easily, since the leader relates his behavior to situation, policy, and values rather than to his own subjective preferences.

Each organization demands appropriate leadership behavior. The institutionalized organization demands quite different leadership behavior than does the entrepreneurial organization of an earlier day. In the latter, subordinates have no body of policy to serve as a guide and they have to make sure constantly that "their chief's mind is in step with their own and vice versa." A narrow span of control is necessary because ultimately every decision has to be approved by the chief since he will disapprove all those with which he does not agree.

THE DEMANDS of the situation on the leader in the substantively decentralized organization are quite different. The only way in which the large corporation can compete with its smaller, more nimble competitors is by delegating authority down to that segment of the organization where the data are available and prompt action is possible. In addition, because of its survival and growth requirements, the large organization must continuously "develop" executives. Here the philosophy of the substantively decentralized organization is expressed by the phrase "centralization of policy and decentralization of operations." Operating executives actually function in commands of their own and look to the policy of the organization and the values of the society rather than to the desires of their superiors alone for guidance in framing many of their decisions.[35]

There is a close relationship between leadership and the exercise of authority in the substantively decentralized organization. The basic concept in this theory, as in all theories of organization, is that of authority. To review all the definitions of authority that appear in the literature would involve an almost unending task. Therefore, authority will be defined here as "the *right* to make decisions that are accepted by others as the basis for action."[36] *Right* is used instead of *power* because right implies an "institutionalized right to employ power, not power itself.[37] *Accepted* is incorporated in the definition because authority has no meaning, i.e., does not become legitimate, unless conferred on the superior by the subordinates.

Dubin points out that "members of an organization understand authority and leadership and their functions. The problem is not to destroy authority or get rid of leadership. That would inevitably destroy the organization itself. *The real problem is to make leadership and the exercise of authority operate according to the accepted values and beliefs of our society.*"[38]

Summary

The theory of substantive decentralization is postulated on the assumption that the four basic, decision making processes described earlier are available to the large organization. To an increasing extent, the managers of large organizations have come to the realization, at least in the United States, that hierarchy and command control are not so highly valued, in many instances, as are the other processes.

In this connection, it is not necessary

Proposed Amendment to S.A.M. By-Laws

In accordance with Article X of the S.A.M. By-Laws, the following change in its By-Laws recommended by the Board of Directors at its meeting on June 15, 1957, is hereby published, prior to its final consideration at the meeting of the Board of Directors on November 2, 1957:

BY-LAWS Article V, Paragraph 3—Board of Directors

The time and place of regular meetings shall be determined by the Board except that the Board shall hold at least two regular meetings yearly, one at the time of the Spring Conference and one at the time of the Fall Conference.

The purpose of this amendment is to eliminate the June Meeting of the Board of Directors, due to the traditionally low attendance, since most financial and policy matters are handled at the Spring and Fall Meetings.

[34] Ibid., *p.* 13.

[35] *See my paper "Notes on General Theory of Management,"* op. cit., *for further comments on this point.*

[36] *See Herbert Simon,* Administrative Behavior, (*New York: The Macmillan Co.,* 1948), *p.* 125, *who uses "power" instead of "right" in his definition.*

[37] *See C. I. Barnard,* The Functions of the Executive, (*Cambridge: Harvard University Press,* 1951, *pp.* 163-165. *For instance, in the case of the recent revolts in Hungary, the above definition of authority denies that Soviet forces had the right to make decisions although they had the power. Equally, it is quite evident that the Hungarian people have not accepted Soviet authority.*

[38] *Robert Dubin,* Human Relations in Administrations: The Sociology of Organization, (*Prentice-Hall, Inc.,* 1951), *p.* 230.

S. A. M. Conference PROCEEDINGS

are volumes filled with the wisdom and the knowledge of many specialists in all branches of Business, Industry and Education

If you missed the 1955-1956-1957 Conferences of the Society for Advancement of Management, you can salvage the loss by sending for the complete proceedings of each conference.

Simply check, clip and mail the listings below, and the complete bound proceedings of these important conferences will be mailed to you immediately.

12th Annual S.A.M.-A.S.M.E. MANAGEMENT ENGINEERING Conference
☐ Member: $3.50 ☐ Non-member: $5.00

2nd Annual MEASUREMENT OF MANAGEMENT Conference
11th Annual S.A.M.-A.S.M.E. MANAGEMENT ENGINEERING Conference
(April 26-27, 1956) ☐ Member: $3.50 ☐ Non-member: $5.00

1st Annual MEASUREMENT OF MANAGEMENT Conference
Now Now
(November 3-4, 1955) ☐ Member: $3.50 ☐ Non-member: $5.00

OPERATIONS RESEARCH Conference
(September 29-30, 1955) ☐ Member: $7.50 ☐ Non-member: $10.00

GUARANTEED ANNUAL WAGE Conference
(March 10-11, 1955) ☐ Member: $5.00 ☐ Non-member: $7.50

10th Anniversary TIME STUDY & METHODS Conference
(April 28-29, 1955) ☐ Member: $3.50 ☐ Non-member: $5.00

Enclosed find my check ☐ (or) bill me ☐
for the sum of $.....in payment of
the Conference Proceedings checked above.

Name .....

Address .....

SOCIETY FOR ADVANCEMENT OF MANAGEMENT
74 Fifth Avenue, New York 11, N. Y.

to argue as to whether a narrow span of control is, or is not, democratic. Democracy is not a decision making process alone; it is also an institution, and a highly valued one, in the American society. Our democratic system of values places considerable emphasis on the dignity of the individual. A policy geared to this value, among others, emphasizes independence of action in making decisions and incorporates the other decision making processes into the philosophy and structure of the organization. Moreover, because many executives are loathe to relinquish authority to subordinates, the wide span of control is consciously employed to make sure that the supervisor *supervises and leads* rather than becoming involved in the technical details of work at subordinate levels. This accomplishes the purpose of "supervision today to minimize the need for supervision" tomorrow. It further results in a reservoir of executive talent ready and able to succeed when the time comes; thus organization becomes executive development and executive development becomes organization. As the president of one of our largest corporations puts it; "responsible decentralization—as a philosophy—makes it possible to provide at once the big results that come from big enterprise, with the human freedom that comes from respecting the competence and dignity of every individual in the enterprise."[39]

"Face-to-face" leadership and "man-to-man" control are inadequate answers to the problem of organization in an ever more complex world. Only if top management understands the culture of the society and relates the policy of the organization to that understanding will the organization unleash to the full the adaptive and creative faculties of man.

The empirical studies in the behavioral sciences indicate that such a structure and philosophy are available. In this system, top management does not spend its time in shaking hands but in developing a climate in which people and their abilities are recognized and utilized to the full. Once we have this situational climate, the kind of behavior required of the leader becomes quite obvious: "leadership and the exercise of authority operate according to the accepted values and beliefs of our society." In this frame of reference, the narrow span of control, command control, and extreme specialization fall by the wayside. ■

[39] *Ralph J. Cordiner, New Frontiers for Professional Managers, (New York: McGraw-Hill Book Co., Inc., 1956), p. 79.*

Quality Control From Bench To Budget

By Frank H. Squires
Director, Quality Control
Topp Industries, Inc.,
Los Angeles, California

STATISTICAL quality control, more commonly called quality control, is an ascetic among industrial techniques. Calm, aloof, detached, faintly academic, it appears to move through the clatter of the machine shop and the organized confusion of the assembly lines like a visiting professor. Concerned only to bring light into the unanalyzed darkness, it appears incapable of arousing emotion.

And yet it has aroused violent emotions in the shop and in the carpeted offices on mahogany row. It has had the effect of a bull in a china shop without ever feeling like one. It has gone into the big industrial shops like a good samaritan, mounted on an abacus instead of a horse and it has been received with suspicion and occasional resistance.

Why can something so innocent cause so much excitement? Because it isn't as innocent as it appears; it is more than a set of statistical techniques; it is a challenge to the emotions, to the intellect, and to tradition.

It is this challenge on all fronts which makes quality control the tremendously interesting profession it is and which creates the difficulties I want to describe.

On the bench, in the machine shop, quality control engineers seek to install those excellent techniques which appear to be self-evidently good and desirable. But they are resisted and sometimes rejected.

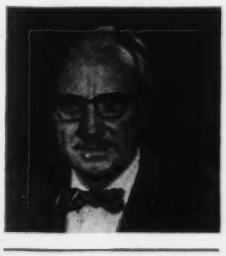
What goes wrong? There has been insufficient preparation, and the failure to prepare is caused by a lack of understanding for the particular problems of the shop and the relationships which exist between inspectors and production operators.

Consider an inspector in the machine shop, a skilled machinist and set-up man promoted to inspection. A quality control engineer is sent down to the shop to install Shewhart control charts. Engineer and inspector meet to discuss the same problem, but they don't speak the same language—they approach the problem from different angles, and in next to no time there is mutual exasperation.

The inspector's entire experience has taught him to see the parts piece by piece, each a distinct and separate identity. As a machinist he once labored over each piece with equal care. He was occasionally distressed by unaccountable variations but he did not doubt that an extra effort on his part would produce identical parts.

The first clash occurs when the quality control engineer turns impatiently from the inspector's careful demonstration of a defect and asks, "how frequently does it occur?" It is the first indication that the engineer does not "see" the individual piece, except as a small and insignificent sample of the group. This becomes more evident as the conversation continues and the engineer presses for the process average quality level in recent lots, or for information from which it may be computed.

The engineer shortly reveals that his aim is to control the process so that the probability of making defectives will not run higher than 1% or whatever quality level is established. This may be a far higher yield of good parts than the process has ever given but the quality control engineer's willingness to settle for anything less than perfection



FRANK H. SQUIRES had his first contact with Quality Control in 1942, after leaving Toronto University's Applied Science and Engineering Faculty to join Sutton-Horsley Company, Ltd., as Quality Control Manager. In 1944 Mr. Squires moved to the United States to join the Thomas A. Edison Industries, Inc., in New Jersey, as Chief Inspector with full responsibility for development of a Quality Control policy. Hughes Aircraft Company took Mr. Squires west in 1952. In 1953 he joined Lear, Inc., of California and in March 1956 he became Director of Quality Control for Topp Industries, Inc.

shocks the inspector. The inspector and the machinists he works with have always had only one aim; perfection!

Although it is never achieved there is great virtue in the effort and an equal virtue in the continued hope and expectation. By contrast it seems almost immoral to abandon the search for perfection and to become reconciled to "second class" goals like 99%, or even 99.9% good. The engineer is familiar with and accepts the concept of the imperfectability of human effort; the inspector isn't and doesn't, and neither does the vast majority of mankind.

THERE is the matter of "judgement" or "common sense". An inspector operates under the protection of those powerful and popular labels when he considers the possibility of accepting parts which do not quite meet the specification. He may do this because he believes, from his knowledge of the end product, that the slight discrepancy will do no harm; or because he believes the tolerance on the mating part will compensate for it; or because he has seen similar discrepancies accepted in official engineering review in the past; or because he knows the part to be "the best" the man and the machine can produce. The tendency to award high marks for effort and to take the position that a man's best ought to be good enough is not confined to inspectors. It is another universal human trait and the individual who intends to challenge it must prepare a powerful case. The quality control engineer challenges it without being prepared and is surprised by the resentment that flares up. The engineer is unprepared for what be will find; the inspector is equally unprepared for what is expected of him.

The inspector will be required to comprehend a new procedure, the setting up and maintenance of X and R charts. These require some knowledge of mathematics, no matter how simple the working techniques are made. He is going to be required to let the job run when he knows there is a probability it will produce a small fraction of discrepant parts, this challenges his sense of propriety.

Most unfortunately he is going to have to surrender the exercise of "judgement" and "common sense" as these are commonly understood in the shop and be guided by careful measurements objectively recorded on the control chart. From having been the all-powerful shop oracle he is to become an attendant for an inanimate control chart, or so it seems to him.

The inspector is confronted with a direct intellectual and emotional challenge. He must learn something relatively complicated and he must surrender jealously guarded power.

The intellectual challenge should not be presented on the floor at all. Inspectors should be thoroughly trained in their use before control charts appear in the shop; it may thus develop that the inspector will become the explainer, the expositor of the new technique and will discover an emotional satisfaction akin to the exercise of power.

There are other solutions for these very serious difficulties but the battle is already half won when the quality control engineer is aware of them and approaches them with sympathy and understanding.

Budget

It would be expected that an austere objectivity and a frigid regard for the facts would dominate the negotiations for a quality control budget. Not at all! Here also there are emotional overtones and the occasional clash of conflict between current needs and traditional attitudes.

Every quality control administrator has learned that his most important duty is the preparation of the budget, "selling" it to general management and keeping it sold.

He must be prepared to explain convincingly why the allotment for quality control should be set at a certain figure. He will have to meet frequent proposals to modify it, to rationalize it, to reconsider it, all of these being euphemisms for "reduce it".

The limited enthusiam for quality control budgets can be explained; there are two strikes against it before the budget conference opens.

Strike one: Quality control is labeled indirect or nonproductive in accounting terminology.

Strike two: Quality control was early identified with inspection and the identification has stuck.

Accounting terminology has enshrined relationships which existed between the various departments of an organization at the begining of the century.

In those by-gone days products were simpler and industrial organizations less complex. In the Victorian period one can imagine the dimly lighted factory, the rows of manual workers bending over benches and machines. The owner in a stovepipe hat stands at the end of the shop, counting the finished products coming off the end of the line. The Wells Fargo Express is waiting, ready to rush them to all parts of the country at breakneck speed.

There were no complications, the workers got their wages and the owner got the tax-free profits.

When the business got bigger, the owner's daughter-in-law came in to keep the books. The manual workers, wages might then have been termed productive, and the daughter-in-law's non-productive. The ratio of non-productive to productive work was obviously a very small one. This tiny ratio became a precious legend.

Times and products have changed. Products of incredibly increased complexity and precision are being turned out in quantities beyond the wildest dreams of the stovepipe hat. These products require thousands of hours of preparatory engineering, production and inspection planning, the expenditure of great fortunes in machine tooling in order to reduce the actual manual labor to a minimum. Without these preparations and without their continuous support the raw material would rot and rust and machines and men would stand idle.

The manual labor content has diminished tremendously and the indirect increased accordingly, but the memory of those early days lives on. That almost prehistoric ratio is remembered with anguish when modern "non-productive" departments present their budgets.

WE ARE heading into automation where the required amount of manual labor will shrink almost to zero and still the beautiful legend lives on. Hordes of engineers and programming attendants will wait on the automated machinery and the ratio of "non-producers" to "producers" will become astronomical.

Since the real work will already have been done by the engineers and planners (as it is to a large extent even now), all that will remain for "direct labor" will be to push the button.

It would emphasize dramatically the profound change which is taking place to allow the owner's daughter-in-law to push the button.

This charming person will then have moved from the numerator of the ratio to the denominator and will finally stand the beautiful legend completely on its head.

The second strike against Quality

(*Continued on page 27*)

Operation Or Operator—Basis Of Leveling Industrial Workers' Performance?

By Lee E. Kimball
Associate Professor of Engineering
St. Louis University
St. Louis, Missouri

THE VAST difference in performance tempo of people is evident in practically all endeovors; walking, writing, speaking and likewise in the many and varied industrial operations. This difference of pace is noticeable when workers are paid in hourly wage, or when some incentive plan is in effect.

In recognition therefore of variation in working pace it is apparent that an industry, sincerely intent on a fair wage for a fair day's work, must determine a Standard Operation Time which shall be just for all deemed qualified workers. In other words, a means for leveling must be provided or its necessity obviated.

The procedure in arriving at this Standard Operation Time entails:

1. Obtaining actual elemental time for a prescribed production method.
2. Rating the pace (tempo) of performance in accord with the concept of normal performance.
3. Leveling the observed pace to normal pace by means of an adjustment factor.
4. Adding allowances for personal time, machine time and irregular occurrences.

Rating the pace and determining the Leveling factor are probably the most difficult of these steps; most certainly they are sources of much controversy. This is readily understood when it is realized that Leveling is not measurable. Rather, on the contrary, it is fraught with judgement; judgement not only in rating performance, but also in arriving at the Leveling factor.

In the discussion which follows two approaches are contrasted in this exercise of judgement with respect to skill and effort; an approach from operator viewpoint and an approach from the operation viewpoint. Moreover, a graph is submitted showing results obtained from both approaches. The figures used in plotting the curves shown were taken from ten actual operations in industry. The studies covered a relatively wide range of operations.

The accompanying Leveling curve for the Operator concept is based on Operator characteristics. The Operators were rated average, good, etc., in accordance with classifications prepared from pre-determined descriptions, including characteristics which are not observable. The Leveling factor was then obtained from conversion tables.

Leveling by these means is familiar to Job Study Engineers. As a matter of fact, it has been in industrial use for many years. Explanation in detail, therefore, seems unnecessary for the purposes in mind.

Admitting that Leveling is not measurable, but rather on the contrary is a matter of judgement, it seems logical that operator characteristics which are unobservable tend to produce a less effective basis for judgement. In other words, additional obstacles are encountered in an immeasurable situation.

A further objection to Leveling from the Operator viewpoint is that identical characteristics do not appear in all degrees of skill and effort.

Recognized authorities have used many phases in the description of operator characteristics; nevertheless regardless of descriptive accuracy, the

LEE E. KIMBALL has had a career which combined business with teaching. His first position was with Babcock & Wilcox Company, Barberton, Ohio, as Draftsman. From 1919 to 1940 he was with the Goodyear Tire & Rubber Co., Akron, Ohio in Machine Design, Mechanical Goods Sales and Industrial Engineering. In 1941 he joined Goodyear Aircraft Corporation as Engineering Representative and Stress Analyst to Chance Vaught Aircraft Corp. He became a teacher at Goodyear Industrial University in 1946, and an Associate Professor of Engineering at St. Louis University in 1948.

disadvantages mentioned appear as obstacles in the exercise of judgement.

Leveling from the Operation viewpoint, in effect, overcomes in great measure these disadvantages, since the requirements of each job are separate and distinct from others. Furthermore, the factors involved are definitely observable.

The values used in plotting the Leveling curve from the Operation viewpoint were obtained entirely from observable Operation characteristics and only whose effect was consistent were considered.

The Operation concept appears to be a more direct approach and as seen from the graph, the curve shown for the Operation method follows correct Leveled performance more closely than the curve shown for the Operator method, excepting the portion between Leveling factors from .73 to .93. However, within this range, the variation of the Operation curve from correct Leveled performance is somewhat less than 4% which seems good Leveling attainment.

It should be understood that the following factors enumerated and briefly explained were employed in determining the Standard Time from the Operation viewpoint only after careful study, adequate tests, and consultation.

The Operation viewpoint is based on normal pace (tempo) with respect to specific job requirements.

THE PACE of the trained operator for most effective performance is considered the normal pace, and it is assumed that the trained operator can execute a normal pace.

Normal pace has probably never been adequately defined. However, in so far as the industrial worker's pace is concerned, the following prime considerations definitely are governing influences:

1. The Operation requirements as to coordination; namely, motion classification, number of motions, complexity and balance of the motions, the extent of eye fixations.
2. The Operation requirements as to the degree of smoothness of progression between motions, and of rhythm involved.
3. The Operation requirements as to precision or care involved in the performance of basic Therbligs and the effect of physical laws involved; gravity, momentum, etc.

If the parts handled or the members of the body are small, momentum may be of negligible effect. However, if the reverse is true, momentum can be advantageously employed to neutralize the effect of gravity. On the other hand if the job requirements are such that momentum cannot be utilized advantageously, then additional effort in overcoming it is necessary.

We may marvel at some feat of strength, such as shifting the position of a heavy weight with apparently little effort. The answer is that the performer is trained to utilize, in motions, momentum to counteract gravity.

The opposite effect may be illustrated from experiments in walking. Three miles per hour is generally considered optimum or normal rate. Therefore in general, a person walking slower than three miles per hour actually exerts more effort at the reduced speed.

4. Requirements of the Operation regarding the exertion of force and the range of motion.

The degree of freedom or restraint is expressed by the ratio of the required force to the capacity of the body members; and with respect to motion range, the ratio of required distances to the effective range.

The first three prime considerations pertain to skill, while the fourth pertains to effort.

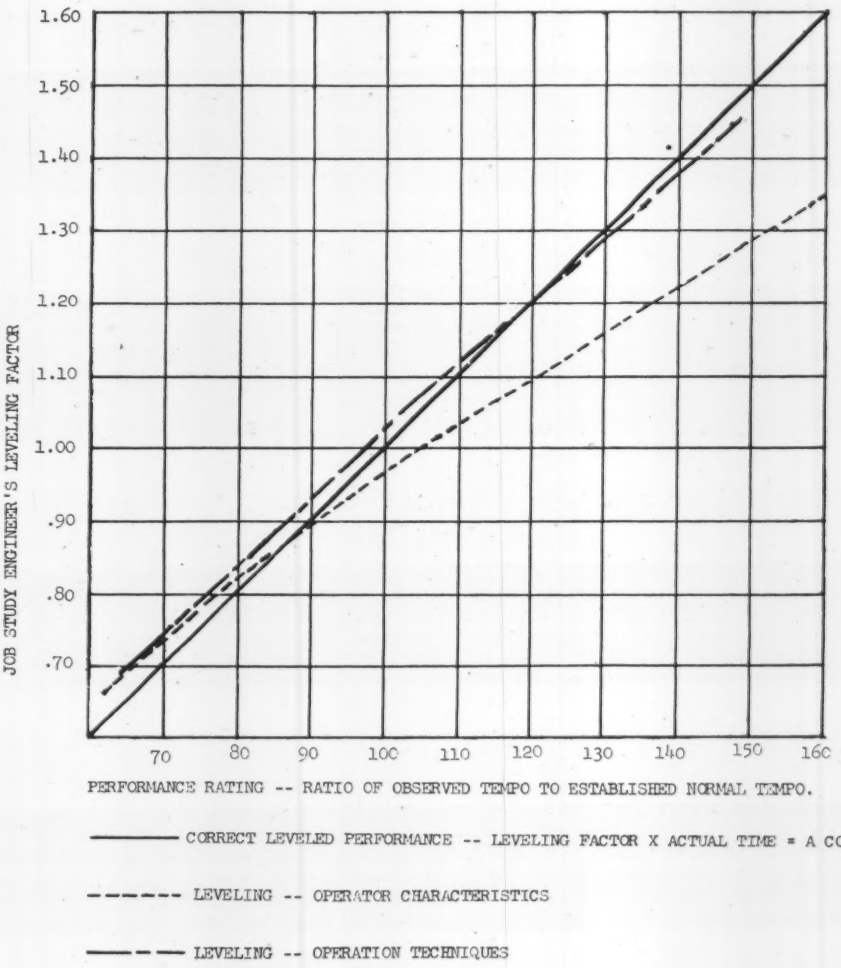
In addition to these prime considerations, additional operation characteristics might occur as influencing the Leveling process; namely, the following:

1. Physical fitness for the operation.
2. Mental fitness for the operation.
3. Extent of training.
4. Execution in accordance with the prescribed method.
5. Conditions with respect to the job.
6. Consistency with respect to the job.
7. Production quality.

These additional considerations are not included in Leveling from the Operation concept in view of the explanation which follows:

1&2. Physical and mental fitness are important aspects of production. However, they can be objectively ascertained through observance of the actual motion requirements of the job.

LEVELING -- OPERATOR CONCEPT VS. OPERATION CONCEPT



3. It is assumed that operators to be used are adequately trained.
4. Each operator is expected to follow the prescribed method. Planning and clean up as deemed necessary are considered elements of the operation.
5. The study is to be made when conditions are average, otherwise fair time values will necessitate studies under all conditions of the work.
6. Mechanical features definitely govern consistency of the work, but on the other hand, variation as to machines or material result in inconsistency.

Irrespective of being under operator control or not under operator control "Consistency of work" is not a dependable factor.

7. Quality is predetermined; and it is assumed that if the product is unsatisfactory, the operation is not being performed according to the prescribed method.

It would be a violation of ethics, and likewise one of confidence, to reveal the source of this industrial information. Basic ideas only, respecting the Leveling procedure obtained from discussion, are presented herein.

THE SINCERITY of purpose of this industry as to its desire of paying fair wages, obviously necessitating a sound basis for determining Standard Time, is reflected by its reputation of enjoying very satisfactory employer — employee relations.

Exception is not taken to a questioning attitude respecting any portion of this article, especially concerning tentative conclusions which may seem to be based on relatively limited job studies. However, substantiation is indicated in view of intense research, development and publication within the past decade, respecting the definite influence of operation characteristics in Leveling and moreover their use in practice.

Eminent anthorities in both the educational and practical fields are in general agreement that widespread disagreement exists as to methods for Leveling. In contrast to discouragement, this situation has stimulated interest and concentration directed towards a more objective approach in performance rating.

Of prime importance are carefully prepared films representing the standard pace (100 or 60 base) and step films showing deviations from standard pace. Likewise, the effect of inherent operation characteristics on performance rating has been investigated and results to a large extent made available for use, percentage wise.

In keeping with present day industrial practice time studies are definitely necessary, irrespective of admission that factors of judgement are prevalent in all methods employed. Elimination of such factors as may be feasible and reducing to minimum variation those which remain appear a challenge, approaching the ideal of Dr. Frederic Taylor, "A fair day's pay for a fair day's work". ■

Just Out! **THE DYNAMICS OF INTERVIEWING**

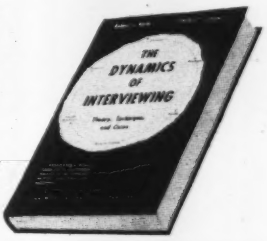
Theory, Technique, and Cases

By ROBERT L. KAHN and CHARLES F. CANNELL, both of the University of Michigan

FURNISHES the key to successful interviewing! Helps you understand the psychological forces at work between the interviewer and respondent, and supplies you with practical techniques for setting up the interview. The authors show you exactly how to motivate the respondent, specify objectives, formulate questions, design questionnaires, and probe for information. Case studies cover many different kinds of interviews, and rating scales enable you to evaluate your own interviewing skill.

1957 368 pages Illus. $7.75

Send for a 10-day ON-APPROVAL copy!



JOHN WILEY & SONS, Inc. **AM-97**
440 Fourth Ave., New York 16, N. Y.

Please send me a copy of THE DYNAMICS OF INTERVIEWING to read and examine. In 10 days I will return the book and owe nothing, or I will remit $7.75, plus postage.

Name .....

Address .....

City ..... Zone ..... State .....

( ) SAVE POSTAGE! Check here if you enclose payment, in which case we pay postage. Same return privilege, of course.

This issue of

ADVANCED MANAGEMENT

will be read by over 50,000 management people.

Are they a market for your product?

(*Continued from page* 24)

Control is its early identification with inspection.

In the late '20s and early '30s when Walter Shewhart's statistical quality control procedures made their first appearance in industry they were put into the hands of inspectors. The intent of the quality control procedures was to prevent the manufacture of defective parts. Quality Control was to be an integral part of the production plan, its particular aim being high productivity and a planned elimination of scrap. But inspection was popularly recognized as a sorting operation which went into effect only after the production job had been finished. In fact, it was said that inspectors neither designed the product, nor made it, nor sold it, but only rejected it.

This was a most unfair appraisal of inspection but it had a popular vogue and because of the close association, quality control was similarly stigmatised.

TIME had modified this attitude somewhat but not entirely. From the bench to the budget the Quality Control Administrator must be sensitive to the emotional climate; he must remember that the traditional view of "indirect" or "non-productive" labor and the effect of the early identification with inspection are inherited from the past and have therefore, in many eyes, a certain validity. They can only be dispelled by constant demonstrations of the productive character of quality control. Sympathetic understanding is the watchword for the quality control engineer whether he is making an installation in the shop or presenting a budget to general management. ■